The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2226.—VOL. XLVIII. LONDON, SATURDAY, APRIL 20, 1878. [WITH SUPPLEMENT.] {PRICE ..... SIXPENCE. PER ANNUM, BY POST, £1 4s.

INSTITUTION OF 25 GREAT GEOR S. W.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and Dock Shares.

BUSINESS negociated in Stocks and Shares not having a general market value.

BUSINESS in COLLIERY and IRON Shares, and in the principal WAGON and MANUFACTURING COMPANIES of the NORTH of ENGLAND and SCOTLAND.

BUSINESS in all the principal COTTON SPINNING Shares.

Mr. J. H. CROFTS, having now established CORRESPONDING AGENCIES in all the CHIEF TOWNS of the United Kingdom, is prepared to deal in the various LOCAL Stocks and Shares at close market prices.

ACCOUNTS OPENED FOR THE FORTNIGHTLY SETTLEMENT.

Daily Price List, issued at 5 P.M., giving latest Quotations up to close of Market. Also, on the 1st of every month a List of all Securities currently dealt upon the Mining and Stock Exchanges, with latest prices, current dividends, rate of interest yielded at market price, &c., and every Friday a general List containing closing prices of the week.

MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—

Aberdaunant, 8s.	25 Hultafall, £4¼.	50 Rookhope, 19s.
Bodidris.	50 I. X. L., 2s. 6d.	20 Richmond, £8 18s. 9d.
Cardiff and Swansea.	50 Javali, 6s.	30 Roman Grav., £8¾.
Chapel House, £3½.	20 Leadhills, £3 17s. 6d.	20 St. Harmon.
Chontales, 12s. 6d.	25 Llanrwst, £2¼.	50 St. Bride's Slate, 37s 6
Combmartin, 2s. 9d.	30 Llan Gan, offer wtd.	15 Tankerville, £4¼.
Condes of Chili, off. w.	10 Minera.	10 Van, £22.
Derwent.	25 N. Quebrada, 33s 9d.	20 Van Consols, 10s.
Devon Cons., £2 15s.	20 N. Zea. Kapan., 13s 9d	20 W. Tankerville, 12s 6d
East Van, £6 7s. 6d.	50 North Laxey, 4s.	40 ditto Preference, 26s.
Exchequer, 2s. 9d.	50 Pandora.	10 W. Chiverton, £13½.
Flagstaff, 14s.	100 Penstruthal, 4s. 9d.	10 W. Wye Valley, £3 8 9
Glyn, 11s.	50 Pestarena, 4s. 9d.	15 Wye Valley, £2.
Glenroy, 17s.	30 Parys Moun., 10s.	25 Wh. Mary Hutch., £2
G. Laxey, 18¼ c. div.	25 Port Phillip, 10s.	10 Wh. Peevor, £6¾ (xd)

SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

D'ERESBY MOUNTAIN AND D'ERESBY CONSOLS.—SPECIAL BUSINESS in these SHARES.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS—ARGENTINE—EGYPTIAN—RUSSIAN, TURKISH, SPANISH, PERU. &c.
SPECIAL BUSINESS in the above, and Fortnighty Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS—HOME AND FOREIGN.—SPECIAL BUSINESS in the above, and Fortnightly Accounts opened on receipt of the usual cover.
JAMES H CROFTS, 1, FINCH LANE, LONDON.

MISCELLANEOUS AND TRAMWAY SHARES.—SPECIAL BUSINESS in—

MISCELLANEOUS.	CHEMICAL.	TRAMWAYS.
Alhambra Palace.	Lawes.	Argentine.
Bore-street Warehouse.	Langdale.	Bristol.
Falcomb Sack.	Newcastle.	Edinburgh.
Imperial Assurance.	TELEGRAPHS.	Glasgow.
AQUARIUM.	Direct.	London.
Brighton.	Globe.	North Metropolitan.
Royal (Westminster).	Telegraph Construction	Tramways Union.
Yarmouth.	W. India and Panama.	

BUSINESS TRANSACTED in all MISCELLANEOUS SHARES (of whatever description) having LONDON or COUNTRY MARKET VALUES.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.
Bankers: City Bank, London; South Cornwall Bank, St. Austell.
ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in MINING and COLLIERY Shares of every description. English and Foreign Stocks, Colonial Government Bonds, Railways, Banks, and Miscellaneous Shares, and all Securities dealt in on the London Stock Exchange, for INVESTMENT or SPECULATION.
Purchases and Sales negociated in Unmarketable Stocks and Shares.
Speculative Accounts opened for the Fortnightly Settlement.
References given and required when necessary.
A Stock and Share List forwarded free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—

Aberdaunant, 7s. 9d.	35 Frontino, £2 1s. 3d.	30 Plynlimmon.
Birdseye Ck., 19s. 6d.	10 Gorsedd & Mer., £4⅝	45 Parys Mount., 9s. 3d.
Blue Tent, £3.	5 Great Laxey, £18¼.	10 Pateley Bridge, £2 18 9
Bodidris.	70 Glenroy, 16s. 9d.	50 Port Phillip, 10s. 6d.
Chontales, 19s.	20 Hultafall.	40 Rookhope, 19s. 6d.
Cambrian.	40 Javali, 6s. 9d.	10 Richmond, £9 6s. 3d.
Chapel House, £3½.	50 Kapanga, 13s. 6d.	15 Roman Grav., £8¾.
Devon Con., £2 16s. 3	25 Leadhills, £3⅞.	5 South Condurrow.
D'Eresby Consols.	40 Last Chance, 19s.	10 South Frances.
Derwent.	30 Llanrwst.	50 Tyn-y-fron.
Don Pedro, 11s.	5 Minera.	10 Tankerville, £4¼.
East Caradon, 7s. 6d.	60 Marke Valley, 11s. 6d.	5 Van, £21⅞.
East Van, £6¼.	50 North Laxey, 3s. 9d.	30 W. Pateley Bri., 41s.
Eberhardt, £6 3s. 9d.	20 New Quebrada, 31s.	15 Wh. Grenville, £3 16 3
Flagstaff, 13s.	100 Penstruthal, 5s. 3d.	25 W. Tankerville, 13s 6d

OFFERS WANTED for the following:—

Prince Patrick.	4 Isle of Man (£25 shrs.)	10 Bridgefield & Victoria
Talybont.	20 North Fleet Chalk Quarry.	Salt.
Thornhill Reef.		40 Llay Hall Colliery.

DEVONPORT AND TIVERTON BREWERY COMPANY.—Mr. BUMPUS can supply a limited number of these shares on advantageous terms to cash purchasers.

"BLUE TENT, HULTAFALL, and WHEAL GRENVILLE Shares should be bought. They are all improving in value, and will, in all probability, be much higher before long.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

WILLIAM HENRY BUMPUS, SWORN BROKER.
Offices: 44, Threadneedle Street, London, E.C.
BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

WILLIAM GABBOTT,
STOCK AND SHARE DEALER,
8, DRAPER'S GARDENS, THROGMORTON STREET,
LONDON, E.C.

MESSRS. ENDEAN AND CO., 85, GRACECHURCH STREET, LONDON, E.C., STOCK AND SHARE DEALERS.
Established in 1861.
Bankers: Barclay, Bevan, and Co., and London and Westminster Bank, Lothbury.

English and Foreign Stocks and Shares and all other Securities dealt in for cash account.

LLANRWST AND BODIDRIS.—Dealers and others having business in the shares of these companies will find a ready market on application to Messrs. ENDEAN and Co.

MR. THOMAS THOMPSON, JUN., STOCK BROKER,
1, PALMERSTON BUILDINGS, BISHOPSGATE STREET,
LONDON, E.C.

Mr. THOMPSON transacts business in every species of Stock Exchange and Mining Securities.

Mr. THOMPSON affords reliable information to investors, and can give, when desired, a list of first-class Stocks and Shares, yielding 4 to 10 per cent. dividends at present prices.—Mr. THOMPSON'S weekly Circular may be had on application.

MESSRS. PETER WATSON AND CO.,
54, OLD BROAD STREET, LONDON, E.C.
BUSINESS in STOCKS and SHARES.
RAILWAYS, BANKS, DIVIDEND LEAD MINES, &c.
BANKERS: The ALLIANCE BANK (Limited).
A CIRCULAR published MONTHLY. Single copy, 6d.; annually, 5s.

MR. ALFRED E. COOKE,
STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON, E.C.
ESTABLISHED 1853.

INVESTORS' GAZETTE, published every FRIDAY EVENING in time for post, sent on receipt of postage stamp.
AN INVALUABLE PUBLICATION.
Edited by—
ALFRED E. COOKE, 76, OLD BROAD STREET, LONDON.

D'ERESBY MOUNTAIN.—These Shares were recommended by MR. COOKE at £30. The price is now £80. They will STILL GO HIGHER.

D'ERESBY CONSOLS.—Shares should be immediately purchased, and may be had on best terms.

RAILWAYS AND FOREIGN STOCKS.—Business done at closest STOCK EXCHANGE prices.
ALFRED E. COOKE, 76, OLD BROAD STREET, LONDON.

MR. JAMES STOCKER, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
[Established 1848.]
RAILWAYS, FOREIGN BONDS, BANK, INSURANCE, TRAMWAY, and all MISCELLANEOUS STOCKS and SHARES.

BRITISH AND FOREIGN MINES:—

Aberdaunant, 8s.	Parys Mountain, 10s.	Chontales, 10s. 6d.
Chapel House, £3½.	Pateley Bridge.	Don Pedro, 11s. 3d.
D'Eresby Consols.	Penstruthal, 5s.	Eberhardt, £6¼.
D'Eresby Mountain.	Roman Grav., £8¾.	Flagstaff, 11s. 9d.
East Van, £6¼.	Rookhope, 19s.	Frontino, 40s.
Grogwinion, £3½.	South Cwmystwith.	Hultafall, £4¼.
Glenroy, 17s.	South de Eresby.	Javali.
Great Laxey, £18¾.	Tankerville, £4¼.	Last Chance, 15s.
Gorsedd, £4 7s. 6d.	Tyn-y-Fron.	N. Zealand Kap., 11s. 6
Leadhills, £3⅞.	Van.	Port Phillip, 10s. 9d.
Llanrwst, 42s.	Wye Valley, 38s. 9d.	Richmond, £9¾.
Monydd Gorddu.	West Wye Valley, £3¾.	South Aurora, 4s. 6d.
North Laxey, 4s.	Wh. Grenville, £3¾.	Tecoma, 3s. 6d.
Pandora, 14s.	White Cliff.	

Carn Brea, D'Eresby Mountain, Devon Consols, Dolcoath, Mellanear, Minera, Wheal Crebor, West Godolphin, Wheal Kitty.—Almada, Argentine, Javali, Hornachos, Malabar, South Aurora, Tolima.
COLLIERIES.—Alltami, Chapel House, New Sharlston, and Thorp's Gawber.
MISCELLANEOUS.—St. Bride's Welsh Slate, Credit Foncier, Hudson's Bay, Lawes Chemical, Native Guano, Tramway, and Aqfarium Shares.
BANKERS: LONDON AND WESTMINSTER.

MR. T. E. W. THOMAS, SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1837.

The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

	Buyers.	Sellers.		Buyers.	Sellers.
Carn Brea	£ 45	£ 47	New Zealand Kapanga	7s.6d.	10s.
Chontales	10s.	12s.6d.	Panulcillo	£ ¾	£ 1¼
D'Eresby Mountain	80	90	Parys Mountain	7s.6d.	10s.
Devon Great Consols	2½	3	Pateley Bridge	2¾	3
Don Pedro	9s.	11s.	Penstruthal	4s.	5s.
Eberhardt	5¾	6¼	Plynlimmon	4s.	6s.
East Caradon	6s.	8s.	Richmond	8¼	9¼
East Van	5¾	6	Roman Gravels	8¼	8½
Exchequer Gold	2s.	3s.6d.	Rookhope	18s.	19s. 6d
Flagstaff	10s.	12s.	South Caradon	75	80
Frontino	1⅞	2	South Condurrow	11¼	11¾
Glenroy	16s.	18s.	South Frances	2	2¼
Gorsedd and Merilyn	4	4½	Tankerville	4	4¼
Grogwinion	3¼	3¾	Tincroft	11	11½
Great Laxey	18	19	Van	21	22¼
Hultafall	4	4¼	West Chiverton	12	13
Herodsfoot	7	8	West Pateley Bridge	2	2¼
Hingston	8s.	10s.	West Godolphin	⅞	1⅛
Last Chance	14s.	16s.	West Tankerville	10s.	12s.6d
Ladywell	17s.	19s.	West Wye Valley	3	3¼
Leadhills	3¾	4	W. Grenville	3½	3¾
Marke Valley	7s. 6d.	12s. 6d.	Wheal Jane	1	1¼
Mellanear	4	4½	Wheal Kitty	1¾	2
North Laxey	3s. 6d.	4s. 6d.	Wye Valley	1¼	1¾
New Quebrada	1½	1¾	Yorke Peninsula	5s.	6s.

Selections, founded on practical mining knowledge, made for the use of investors. An experience of 20 years.—Business on hand in East Van, Roman Gravels, Leadhills, Gorsedd and Merilyn, Bodidris, and other Lead Mines.
Bodidris shares have been in request this week, and a good business done.

WILLIAM B. COBB, STOCK AND SHARE DEALER,
62, CORNHILL, LONDON, E.C.
Bankers: The Alliance Bank (Limited).

MR. E. J. BARTLETT, STOCK AND SHARE DEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C.

Capitalists should read the Tenth Edition of "How and When to Invest," post free One Shilling, and a small Pamphlet containing information regarding investments unaffected by war. The latter free by post on application.

SPECIAL BUSINESS in East Lovell, East Van, D'Eresby Mountain, Chapel House Colliery, Great Laxey, Minera, Richmond, Bodidris, and South Condurrow shares.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 21 Years),
can sell the following SHARES, at prices annexed:—

50 Almada, 8s. 6d.	10 Great Laxey, £18 10s.	50 Parys Mount., 9s 6d.
40 Birdseye Creek, 19s 6d	15 Grogwinion, £3 12s. 6	50 Penstruthal, 5s. 3 l.
75 Chontales, 11s. 3d.	25 Glenroy, 17s.	60 Port Phillip, 10s. 3d.
40 Cambrian, £3.	20 Hultafall.	30 Rookhope, 18s. 9d.
10 Chapel House, £3 10s.	15 Ladywell, 18s. 3d.	20 Richmond, £9 8s.
60 Don Pedro, 11s. 3d.	40 Last Chance, 17s.	10 Roman Grav., £8 8 9
20 Devon Con., £2 17s 6	20 Leadhills, £3 17s. 6d.	100 St. Bride Slate, 35s.
20 D'Eresby Con., £12¾	30 N. Quebrada, £1 15s.	15 Tankerville, £4 2s 6d
2 D'Eresby, £32 10s.	25 Newport Aber., £3 8 9	100 Tecoma, 3s. 3d.
20 East Van, £6 1s. 3d.	3 Minera, £11.	40 Tyn-y-Fron
15 Eberhardt, £6 2s. 6d.	20 Mon. Gorddu, £2 2s 6	5 Van, £24 10s.
25 Frontino, £1 17s. 6d.	30 Pandora, 15s.	25 Wye Valley, £1 13s 9d
75 Flagstaff, 13s. 9d.	100 Pestarena, 5s. 3d.	20 W. Wye Val., £3 8s. 9
20 Gorsedd & Meril., £5.	20 Pateley Bridge, £3 2 6	50 Yorke Penin., 5s. 3d.

Shares bought and sold at net prices. Telegrams promptly attended to.
Specially Recommended for an early rise in price:—Temple, Gorsedd and Merilyn, Bodidris, Tyn-y-Fron, and Hultafall.

JOSEPH JOHN PYNE,
STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
6, BISHOPSGATE, LONDON, E.C.

Mr. PYNE having been connected with MINING ENTERPRISE for upwards of FOURTEEN YEARS, and having been a DIRECTOR of MINES in SHROPSHIRE, MONTGOMERYSHIRE, CARDIGANSHIRE, CARNARVONSHIRE, YORKSHIRE, and in VENEZUELA, has had great opportunities of becoming acquainted with this particular branch of industry, and will always be desirous of giving every information in his power to all parties transacting business with him.

ALL DESCRIPTIONS OF SHARES are dealt in, including BRITISH and FOREIGN STOCKS, and RAILWAY SECURITIES.

A DAILY SHARE LIST issued, giving latest quotations up to the close of the market.

AN EXTENDED LIST made up to the first of every month of all securities usually dealt in, giving highest and lowest prices for the month, the current dividends, and when payable, with amount of interest calculated at the present market price. Will be forwarded when desired.

MR. PYNE DOES NOT ISSUE ANY CIRCULAR.
BANKERS—THE ALLIANCE BANK (LIMITED).

MR. CHARLES THOMAS,
MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MR. ALFRED THOMAS,
MINING AGENT, AND STOCK AND SHARE DEALER.
10, COLEMAN STREET, LONDON, E.C.

"INVESTMENTS AND SPECULATIONS" for 1878,
Price Sixpence.

TO CAPITALISTS, SHAREHOLDERS, TRUSTEES, INVESTORS.
SHARP'S INVESTMENT CIRCULAR.
Read the APRIL Edition. Post free.
SAFE INVESTMENTS TO PAY 4 TO 6 AND 8 PER CENT.
It is a "Safe Guide" to Investors, containing reliable information upon all Stock and Share Investments; also all the Safest Dividend Investments of the day.
SAFE INVESTMENTS IN THE FOLLOWING—

English, Foreign Railways.	Insurance, Gas, Waterworks.
Preference, Debenture Stocks.	Foreign Stocks, Bonds.
American Stocks and Bonds.	British, Foreign, Colonial Mines.
Bank, Financial, Shares.	Tea and Land Shares.
Tramway, Telegraph Shares.	Shipping, Dock Shares.
Continental Town Bonds.	Indian, Colonial Stocks.
Municipal Bonds.	Miscellaneous Shares, &c., &c.

Market prices; Dividends upon outlay, and when payable; Reports, &c., &c.
GOULD SHARP AND CO., STOCK AND SHARE BROKERS,
42, POULTRY, LONDON, E.C.—ESTABLISHED 1852.
Bankers: London and Westminster, Lothbury, London, E.C.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON,
LONDON MINE AGENT, ACCOUNTANT, AND AUDITOR.

FERDINAND R KIRK, STOCKBROKER,
5, BIRCHIN LANE, E.C.
Bankers: London and Westminster, and City Bank.
SPECIAL BUSINESS in Llanrwst, Alamillos, West Wye Valley, Caron, Devon Consols, Minera, Eberhardt, D'Eresby Mountain, and D'Eresby Consols.
COLLIERIES.—Thorp's Gawber, Newport Abercarn, New Sharlston, Alltami, Cardiff and Swansea, Chapel House, Pelsall.
MISCELLANEOUS.—General Credit, Royal Aquarium, Yarmouth Aquarium, Brighton Aquarium, Hudson Bay, Otago Investment, Diamond Rock.
FOREIGN BONDS.—Egyptian Preference, ditto Unified, Columbian, Bolivian, Turkish 1871, ditto 1865. A large business for fortnightly settlements is being done in several of these.

MESSRS. EKINS AND CO., STOCK AND SHARE DEALERS,
14, QUEEN VICTORIA STREET, MANSION HOUSE, LONDON.
Bankers: Metropolitan.
Special dealings in South de Eresby Mountain Shares.

MESSRS. W. REYNOLDS AND CO.,
STOCK AND SHARE DEALERS,
57, GRACECHURCH STREET, AND TALBOT COURT,
LONDON, E.C.

MESSRS. JONES AND HOUSTON, 25, CROSBY HALL CHAMBERS, LONDON, E.C., STOCK AND SHARE DEALERS.
OFFERS WANTED FOR—
100 New Rosario. 50 Prince Patrick. 20 Wheal Newton.

MR. JOHN B. REYNOLDS, STOCK AND SHARE DEALER,
70 AND 71, BISHOPSGATE STREET WITHIN, LONDON, E.C.
Established Twenty Years.
Bankers: London—City Bank.
Cornwall—Messrs. Tweedy, Williams, and Co., Redruth.

MR. M. F. DORMER, STOCK AND SHARE DEALER,
79, CORNHILL, LONDON, E.C.
Has business in 100 Birdseye Creek; 60 Blue Tent; 25 D'Eresby Consols; 20 East Van; 75 Fall Creek; 50 Hultafall; and 35 Pateley Bridge at close market prices.

MESSRS. J. TAYLOR AND CO.,
MINING ENGINEERS AND INSPECTORS,
86, LONDON WALL, LONDON, E.C.,
Have Agents in England, Scotland, Wales, and on the Continent.

MESSRS. W. J. TALLENTIRE AND CO.,
STOCK BROKERS, AND DEALERS IN BANK, TRAMWAY, MINING, AND MISCELLANEOUS SHARES,
20, CHANGE ALLEY, CORNHILL, LONDON, E.C.,
Transact business in Stock Exchange Securities and Mining Shares of every description, either for immediate cash or the usual bi-monthly settlements, and also afford advice personally or by letter to executors, trustees, capitalists, and investors of every class in the selection of Securities for safe and profitable investment, their experience of the markets, extending over a period of more than 17 years' together with special facilities for acquiring information, enabling them to act beneficially for clients.
They have established Corresponding Agencies in all the principal towns of the United Kingdom, and are prepared to deal in the various local Stocks and Shares at close prices. Orders per post or telegraph receive prompt attention.
INVESTORS SHOULD APPLY for a copy of Messrs. W. J. TALLENTIRE AND CO.'S Circular, SENT POST FREE. It contains valuable information on Foreign Stock, Railway, Mining, and General Investments.

TO INTENDING INVESTORS AND SHAREHOLDERS.

MESSRS. W. J. TALLENTIRE AND CO., 20, CHANGE ALLEY CORNHILL, LONDON, E.C., have the following MINING SHARES FOR SALE.
OFFERS CAN BE MADE, OR PRICES WILL BE FORWARDED:—

10 BODIDRIS	LEAD.	50 PARYS MOUNTAIN	COPPER.
15 EAST CRAVEN MOOR	do	100 ROOKHOPE	LEAD.
20 EAST VAN	do	15 ROMAN GRAVELS	do
100 GLENROY	do	15 ST. HARMON	do
10 GREAT HOLWAY	do	25 TANKERVILLE	do
5 GREAT LAXEY	do	5 WEST WYE VALLEY	do
20 LLANRWST	do	50 WHEAL AGAR	TIN.
20 HULTAFALL	do	20 WEST CRAVEN MOOR	LEAD.
100 MEDLYN MOOR	TIN.	25 WEST CHIVERTON	do

N.B.—Some of the above will be sold on specially favourable terms to cash purchasers.

GROGWINION LEAD MINE (LIMITED).

MESSRS. H. HALFORD AND CO., STOCK AND SHARE BROKERS, of EXCHANGE CHAMBERS, CHANGE ALLEY, LOMBARD STREET, strongly recommend the above mine as one of the best and safest mining investments. Dividends are paid half-yearly. The mine has lately very much improved in the deepest workings, and the sales for the present month are 150 tons of lead.

WYE VALLEY, WEST WYE VALLEY, RED ROCK, AND SOUTH CWMYSTWITH LEAD MINES.

These mines have all recently improved very much, and large sales of lead are being made. Shares in all of them should be secured at once.

CARON LEAD MINE (LIMITED).
Subscribed Capital £16,000 (all subscribed in a few days).
This company is likely to prove one of the greatest successes of modern times. The mine is now in full work, good Reserves of Lead laid open, and sales will commence as soon as the new dressing machinery is completed. The shares are, we consider, likely to greatly increase in value in a very short time.

Now ready, post free for Three Stamps.
FACTS AND FIGURES.—A Survey and Comparison of all Investments, and showing the great security, profit, and permanence of Lead Mines over those of Tin and Copper; with full particulars of a Lead Mine now yielding a good profit, and certain to rise five or six times its present price.
By JOHN R. PIKE, Crown Chambers, Threadneedle-street, London, E.C.

LOCOMOTIVE TANK ENGINES, fitted with COPPER FIRE-BOX, BRASS TUBES, STEEL TYRES, and in finish equal to the MAIN LINE LOCOMOTIVES, FOR SALE, on Cash or Deferred Payments.—Apply to—
FOX, WALKER, AND CO., ATLAS WORKS, BRISTOL.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. LXIX.*

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,
Certificated Mining Engineer.
(Formerly Student at the Royal Bergakademie, Clausthal).
[The Author reserves the right of reproduction.]

SECTION V.

A.—TIMBERING IN LEVELS AND WORKING PLACES.

The first and most important work connected with the fixing of a stemple in position is the dressing of the stone or ground to receive the two ends of the stemple—the preparing of the "Buhnloch"† and the "Anfall." The advantages of a careful dressing of the stone and cutting of the stemple are that, by an exact fit, each portion of the stemple receives its proper proportion of the strain, and its total strength is thus always available; and by the careful fitting of the ends of the stemple in the Buhnloch and the Anfall there are a greater number of points in contact, the friction between which is the resistance which opposes any motion tending to displace the stemple. This latter condition applies principally to the Anfall; any sideways movement of the end of the stemple in the Buhnloch is prevented by sinking the Buhnloch to some little depth in the rock. This is sometimes necessary, if only to be enabled to insert the end of the stemple in solid rock; and, besides, the lower part of the Buhnloch forms a sort of ledge, on which the end of the stemple rests, and against which it presses, the pressure being in many cases so great that unless the Buhnloch is formed in the solid rock the lower edge may be burst open. The bottom of the Buhnloch forms a square surface, of which the length of a side is equal to the diameter of the end of the stemple to be inserted. If the Buhnloch is carefully dressed this may be quite sufficient to prevent any sideward movement of the end of the stemple. A round form for the Buhnloch was formerly used at Schneeburg, but this can only be considered as unnecessary and expensive, as a square hole of the exact dimensions is much more readily made than a round one. The depth to which the Buhnloch is cut into the wall of the lode will depend much more on the character of the wall, whether loose and cracked or solid, than on the thickness of the stemple. In some cases it may be necessary to make the Buhnloch at least 12 in. deep. Since the sides of the lode may be cracked to a greater depth than is desirable for the depth of the Buhnloch, and the pieces may thus become later loosened, it is advisable to fix the stemple in such a manner that any probable movement of the sides of the lode will only tend to wedge the stemple tighter in its position. This purpose is effected in two ways—first, by placing the stemple in such a position that any probable movement of the sides of the lodes will fasten the stemple tighter rather than otherwise; and, second, by giving the two faces against which the ends of the stempel bear a suitable inclination with regard to each other.

1.—The position of a stempel in all cases, except where the lode or deposit is perfectly vertical or horizontal, should not be perpendicular to the two sides of the lode or bed. For it is evident that the perpendicular is the shortest line between two surfaces, and any movement of one end of a stemple which is thus fixed at right angles to the two sides of the lode will cause that end (if the other be kept close to the side of the lode) to gape and become slack, and if the movement be continued sufficiently the stemple will become quite loose and fall out. This will be at once evident if we endeavour to describe an arc of a circle with one end of the measuring lath fixed in the centre of the Buhnloch, and then placed in a line perpendicular to the walls of the lode, so that the other end of the lath touches the opposite wall of the lode, then any movement of the lath would leave it quite loose. If, however, the measuring lath be fixed in a position inclined to the perpendicular between the walls of the lode, then any attempt to move it nearer to the perpendicular will only tend to fix it tighter, whilst if moved from the perpendicular it will become loose. Hence it is that a stempel should never be placed exactly at right angles between the two walls of a lode, but at such an inclination to the perpendicular that any movement of the sides of the lode will tend to bring the stemple into the line of the perpendicular between the sides of the lode. Since the most usual movement of the sides of a lode is that of the hanging wall in a downward direction, it follows that the axis of the stemple should form an angle, with the perpendicular to the sides of the lode, through the centre of the Buhnloch on the upper side of this perpendicular, and that both should be in the same vertical plane. The distance of the Anfall end of the stempel from the end of the perpendicular through the Buhnloch, where it intersects the hanging wall is called the "Strebe" of the stempel; the position of the stempel relatively to the perpendicular is called "Aufrichtung" of the stemple. This Aufrichtung of the stempel is not only necessary in the case of metalliferous mines, but ought also to be carefully attended to in coal seams. In but slightly inclined coal seams it will suffice to set the props perfectly plumb; where, however, the inclination of the seam is considerable the prop should be placed in a position midway between the perpendicular to the floor and roof through the foot of the prop, and a plumb line passing through the foot of the prop. The angle between the axis of the stempel and the perpendicular, if too small, might not be sufficient to call forth enough resistance by the compression of the prop to prevent the movement being continued so far as to bring the axis of the prop in the same line as the perpendicular, or, what might readily occur, even past, when the further motion would meet with a continually decreasing resistance, until the prop became loosened. On the other hand, if the above angle was too great a downward movement of the hanging wall or roof would push the stemple back, making this angle greater (instead of bringing it down with it), when the stempel would become loosened. Besides, if the Anfall end of the stempel was made sufficiently fast to prevent its slipping, the stempel might readily become bent and broken across, sooner than if the whole of the pressure was in the direction of the axis of the stempel. The angle varies generally between 10° and 15°, or roundly we may say that the Anfall end of the stempel is placed from 1 in. to 1¼ in. above the point where the perpendicular through the Buhnloch intersects the hanging wall for every foot in length of the stempel, or for a stempel 6 ft. long the "Strebe" may amount to from 6 in. to 7½ in.

2.—The two faces (of the Buhnloch and the Anfall) against which the ends of the stempel rest must have a suitable inclination with regard to each other; and consequently the two ends of the stempel must also be cut in such a manner that they shall have the same inclination with regard to each other. The stempel thus forms a portion of a wedge, which has such a taper that the stempel not only rests upon the two walls of the lode but is also wedged tight between them. The Buhnloch and Anfall are first cut out roughly to shape with hammer and chisel or gad, and afterwards carefully dressed to size and shape, which is controlled by the use of the measuring lath. The Buhnloch is first finished. One end of the measuring lath is placed against that point of the Anfall on the hanging wall where is intended that the centre of the upper end of the stemple shall rest when the latter has been driven tightly into position. The other end of the lath is drawn across the diagonal, the horizontal, and vertical centre lines of the Buhnloch, to ascertain if the surface is at right angles to the axis of the stempel, and projecting portions are dressed off. In this manner the surface of the Buhnloch is dressed to form a spherical surface with the centre of the Anfall end of the stempel as centre and the length of the stempel as radius. The length of the stempel is, however, so great compared with its diameter (the length of the side of the Buhnloch) that in practice the surface is formed as a plane. After the Buhnloch has thus been accurately dressed, the Anfall is likewise carefully dressed under control with the measuring lath. Since, however, the surface of the Buhnloch and Anfall require to be inclined, and not parallel to each other, the control with the measuring lath is somewhat different than when dressing the Buhnloch. One end of the measuring lath is placed in the centre of the Buhnloch, and the other end is moved in horizontal lines, each of which must be at a further distance from the centre of the Buhnloch than the one below. In this manner the surface of the Anfall forms a plane (or cylindrical surface), which intersects the plane of the lode horizontally, and forms an obtuse angle on the upper side with the axis of the stempel; or if a cylindrical surface, whose axis is horizontal, and at right angles to the axis of the stemple, and having a radius greater than the length of the stempel. This latter condition is also necessary, if only for the purpose of making room for bringing the stempel into position,

After the Buhnloch and Anfall have been thus accurately dressed the stempel must be cut to the proper length and dimensions. As we have just mentioned, the surfaces of the Buhnloch and Anfall are formed inclined to each other, in such a manner that they are further apart at the upper portion than at the lower part, and hence the stempel to fit accurately must form a portion of a corresponding wedge (its length must be greater at the upper than at the lower side), and one or both ends of the stempel must be cut inclined to the axis of the stempel. In the Saxon and other mines, where the stempels are comparatively short, they are cut perpendicular to the axis of the stempel at that end which is intended to be inserted in the Buhnloch, and only the other end is cut inclined to the axis. In the case of wide lodes, such as the Harz, it is usual to cut both ends of the stempel inclined to the axis; that, however, which rests on the Buhnloch is generally more nearly at right angles to the axis of the stempel than that which rests on the Anfall, both, however, form obtuse angles on the upper side with the axis of the stempel. The length by which the upper edges of the inclined ends of the stempel project behind the cross section (at right angles to the axis of the stempel) through the lower edge of the stempel end; or, what is the same, the difference between the length of the upper and lower sides of the stempels is called the "Langes." This in the case of stempels of 8 in. diameter amounts to from ¾ in. to 1 in. The amount of Langes, however, is not really dependant on the diameter of the stempel, but on the inclination which the two ends of the stempel should have to each other, and to keep this inclination the amount of Langes will then vary with the diameter of the stempel. The inclination of the surfaces of the Buhnloch and Anfall—*i.e.*, of the two ends of the stempel—must not be too great, else it will be impossible to wedge the stempel into its position, for with too great an angle any wedge will be simply compressed by a blow, and immediately afterwards recoil back into its former position. In the Harz and other places where long stemples are used, the both ends being inclined to the axis of the stempel, the following is the mode of measuring the stemples before cutting them. The distance between the upper ends and between the lower ends of the Buhnloch, or sometimes only between the centre of the Buhnloch and the lower part of the Anfall, are accurately measured with the measuring lath, and the shorter length is marked off on the stempel. The end intended for insertion is then cut at the proper inclination by eye measure, or in the case of very thick stempels the stempel is placed sideways, and a short rod, having two plumb lines, is placed level resting on the stempel and at the desired inclination to the axis of the stempel, which can thus be very accurately measured; the plumb lines are moved on the rod, so that they just touch the sides of the stempel, the point of contact being marked with a piece of chalk, as also that on which the level rod rests. The stempel is then turned over, and the rod with the plumb lines is placed in such a position that the plumb lines touch the two previous chalk marks, the rod being held in an horizontal position resting on the stempel; the point where the rod rests is then marked with chalk; the ends of two diameters of the section along which the stemple is to be sawn are thus accurately obtained. When this end of the stempel has been cut the greatest and shortest lengths are marked off on the upper and under side of the stempel by means of the measuring lath, and with the above-mentioned level and plumb lines the two ends of a diameter at right angles to that—the ends of which have just been marked off by the measuring lath—can be readily obtained, and the Anfall end of the stempel is then by aid of these marks accurately sawn even by an inexperienced hand. When the distance between the centre of the Buhnloch and the lower end of the Anfall only is measured, the length of the stempel is measured off in the following manner:—A nail or gimlet is fixed in the stempel where it is intended to be cut off at right angles (to form the end fitting in the Buhnloch), and against this one end of the measuring lath is placed. From the other end of the lath a short plumb line is suspended, and both sides of the stempel where it is touched by the plumb line are marked with chalk; the amount of Langes is added on one side, and in this manner the greatest and shortest lengths of the stempel are marked off on two opposite sides. As the stempel is slightly compressed on being driven into position, it is usual to mark the ends of the stempel off at about ⅛ in. longer than that given by the measuring lath, or still more exactly by measuring not the distance between the bottom of the Buhnloch and that of the Anfall, but between the bottom of the Buhnloch and a point about 2 in. above the bottom of the Anfall, and likewise when measuring the distance for the upper side of the stempel. In the case of short stempels the Buhnloch end is cut at right angles to the axis of the stempel, and from this end the greatest and shortest lengths are marked off with the measuring lath, and the Anfall end cut accordingly. Sometimes where the mine carpenter has had considerable practice, only the shorter under side of the stempel is marked off with the measuring lath, and the end of the stempel cut by eye measure at the proper inclination.

After the stempel has been cut at both ends the edge of both ends of the stempel are rounded or bevelled off in order to prevent any liability of the stempel being split at the ends, which would readily occur if the strain was thrown on to the sharp edges of either end of the stempel and reduce considerably the strength of the ends, which would with great pressure destroy all lateral cohesion between the fibres of the wood, and pressing them outwards like the end of a mop virtually diminish the length of the stempel, whence the stempel would become gradually loosened till it fell out or had to be replaced. By forming the ends of the stempel in the shape of a truncated cone the fibres of the wood are pressed closer together the greater the pressure brought to bear upon it.

When the stempel has thus been cut to proper shape and dimensions it is ready for insertion in its place. That end which fits in the Buhnloch is first inserted, and then the other end lowered against the Anfall with the shorter side under, so that the ends of the stempels fit the faces of the Buhnloch and Anfall. If the Buhnloch and Anfall have been carefully dressed and ordinary care taken in cutting the ends of the stempel, the latter will then rest securely in position without further support, whilst being driven down with the blows from a heavy hammer, which should be continued till the Anfall end of stemple occupies its proper position.

STEAM BOILER FURNACES.—The invention of Messrs. EZARD and ERSKINE, of Bradford, has reference to the introduction of air and steam into the fire of steam boiler and other furnaces, for the purpose of consuming or facilitating the consumption of smoke, and the invention consists in constructing the furnace with three or other suitable number of hollow bearers or bearing bars, constructed with flanges or projections which carry the fire bars between the said bearers or bearing bars, so as to form a level surface of grid or grating for the fire to rest upon. The said bearers or bearing bars extend from the back or bridge to the front dead plate, and have openings at the front end like a grid to let the hot air and steam into the furnace, and in applying a steam jet at the rear end of each such hollow bearer or bearing bar. The steam, which is supplied to the jet by means of a pipe connected to the boiler, creates a current which draws air into the hollow bearer or bar through one or more apertures provided for the purpose, and forces such air through the bearer or bar to the opening in the front end of the bearer or bar. The air, which has become heated in its passage through the bearer or bar, and at the same time mixed with the steam, issues through the grids or openings, and then passes from them into the fire. In some cases they apply the steam jet in the hollow bearer or bar at a position intermediate between the bridge and front dead plate, and in this case they make a transverse partition in the bearer, and employ two jets, so that one jet may force a current of air to the grid or opening at the front, and the other a current to the back of the bridge of the boiler. In some cases one of these jets is sufficient, but in other cases both can be used. Further, in some cases they employ a double bridge or two bridges; the air and steam issuing from the back of the bearers then pass up between the bridges, and mix with the smoke as it crosses the double or second bridge. There is an opening at the bottom of the bridges for clearing out dirt.

BRANDT'S ROTARY HYDRAULIC ROCK-DRILL.

[Read before the Freiberg (Saxony) Mining Institute, by Herr KUNSTMEISTER BORNEMANN.]

The number of rock-drills has been again increased by a new construction, which possessing many peculiarities, is likely to be of special interest to the mining public. This new rock drill, which has already been tried with the best results in the Sonnenstein Tunnel of the Salzkammergut Railway, is the invention of Herr A. Brandt, engineer. Brandt's rock drill is not so much a new invention as combination and improvements of several older constructions. The real precursor of Brandt's rock drill is that invented by De la Roche-Tolay, and exhibited in the Paris Exhibition of 1867, and from which it is principally distinguished inasmuch that the tool used for the actual boring of the hole is not, as in Tolay's, a diamond crown borer, but a long tube provided at the end with steeled teeth, as experimentally tried, in the year 1840, by Herr Kramer, contractor at Prague, and afterwards recommended by P. von Rittenger. Contrary to the principal rock drills which have hitherto found most acceptance with the mining public, Brandt's rock drill is driven neither by steam nor compressed air, but with water, as in the drill of De la Roche-Tolay; it does not work, however, with such a low pressure as this latter machine, but is arranged for working at pressures of from 80 to 100 atmospheres, and the borer itself is forced with still greater pressure against the surface of the rock, and is automatically advanced as the bore-hole becomes deeper.

The construction of this new machine is simpler and more compact than that of De la Roche-Tolay, and it must be admitted that the construction of the stand for the machine, which seems to be derived from that of Schwartzkopff's rock-drill exhibits the greatest simplicity and suitability. It consists of a hollow column containing a movable piston, which by means of hydraulic pressure is tightened against the two sides, or roof and floor, of the tunnel. On this column is a movable cylindrical muff, which carries the boring machine proper; to this muff, and at right angles to the column, a hollow piston is attached, over which a cylinder provided at one end with a stuffing-box, and closed at the other end by a solid column, is slid. The cylinder is embraced by a circular neck or strap piece, to which two guides or rods sliding in corresponding grooves or sockets in the muff are attached. To the front closed end of the moveable cylinder the hollow boring-rod is attached by means of a bayonet-joint, the end of the boring rod carrying the steel crown borer. On the cylinder a worm-wheel is attached, which is driven by an endless screw rotating the cylinder and boring-rod. The endless screw is driven by means of two hydraulic cylinders attached to the neck or strap piece above mentioned, the cranks on which the two cylinders work by means of short connecting rods are keyed at right angles to each other on the axis of the endless screw. These small engines are double-acting, with piston-valves driven from a couple of eccentrics placed on the axis of the endless screw. The steel crown borer is screwed on to the end of hollow boring-rod, and is formed slightly conical and provided with five teeth placed not radically but in straight lines, passing somewhat to one side of the centre of the borer. The pistons of the hydraulic cylinders move with a velocity of ·3 metres (1 ft.) per second, and effect five revolutions of the cylinder and borer per minute.

The gradual advance of the borer as the bore-hole gets deeper is effected by hydraulic pressure, the water from the accumulator being in communication with the hollow space of the cylinder, and pressing uninterruptedly against the front closed end of the cylinder (which carries the borer) with a total pressure dependent on the pressure of the water and the area of the piston of the hollow cylinder. The further the borer penetrates the rock, by so much does the hollow cylinder, and with it the small hydraulic engines slide forward towards the rock face from the stationary piston attached to the cylindrical muff. When the borer has become blunt, and it is necessary to change it for a fresh one, the borer must be withdrawn from the bore-hole, which is accomplished by means of the hydraulic pressure without any exertion on the part of the attendant workman. There is at the front end of the rotating cylinder a very small opening, which during the regular working of the machine is closed by a screw, but through which the water in the cylinder can be let off, and since the space between the back end of the cylinder and the fixed piston is in communication with the water from the accumulator, the cylinder is thus pushed back from the face of the rock, when the screw closing the opening in the front end of the cylinder is taken out—*i.e.*, the pressure taken off this side of the cylinder and piston. The withdrawal of the cylinder from the face of the rock is, therefore, as automatic as the forward motion. The exhaust water from the pair of small hydraulic engines is conveyed to the hollow boring rod, and passing down this into the bore-hole cools the steel crown and washes out the debris.

For bore-holes deeper than usual the boring rod is formed of separate pieces, attached to each other by means of bayonet-joints, so that the boring rod can be easily lengthened or shortened. The water for driving the machine is furnished by an hydraulic press at a pressure of from 80 to 100 atmospheres; an accumulator serves at the same time the purpose of a regulator. The water is led from the accumulator in drawn iron tubes, which can be of small diameter, since the velocity of the working pistons is comparatively small.

The following are some of the principal dimensions of the machine: Diameter of the small hydraulic cylinders 54 millim. (2·16 in.), diameter of piston rod 38 mm. (1·52 in.), stroke 60 mm. (2·4 in.). The valve, which is formed of a solid cylinder is 13 mm. (·52 in.) in diameter, and has a stroke of 30 mm. (1·2 in). The worm-wheel and with it the cylinder and borer, makes 1 revolution per 5 strokes of the hydraulic engines. The fixed piston has a diameter of 40 mm. (4·4 in.), and the rotating cylinder carrying the borer can be moved over this for a length of 330 mm. (13·2 in.). The hollow standard carrying the muff is 150 mm. (6 in.) in diameter, and the front end of the rotating cylinder, when slid out to its greatest extent along the fixed piston, is 960 mm. (38·4 in.) from the axis of the standard. The weight of the boring machine proper is 120 kilos. (264 lbs.), and that of the standard and muff 125 kilos. (275 lbs.) According to the dimensions above given, and with 5 revolutions of the borer per minute (150 strokes of the hydraulic engines), the amount of water used per minute for driving the machine amounts to 0·71 litres (3·05 cubic feet) per minute, and the effect of the machine with a water-pressure of 80 atmospheres amounts to 7·55-horse power. On account of the loss of the water used for pushing the machine forward as the bore-hole becomes deeper, and the excessive friction between the endless screw and worm-wheel, the ratio of effective work transferred to the boring rod to that required to drive the machine is not more than ¼, so that the effective power of the machine is reduced to 3-horse power. With a water pressure of 80 atmospheres the force with which the annular crown of the borer is pressed against the rock amounts to 7560 kilogs. (16,632 lbs.), or 344 kilos. (756·8 lbs.), per square centimetre, or 4730 lbs. per square inch. According to Weisbach, the resistance of granite and gneiss to crushing by a direct thrust amounts to 8000 lbs. per square inch, so that by the above pressure the resistance of the stone to crushing by a direct thrust is taxed to the extent of 60 per cent. of its capability of resisting a direct thrust, which thus supports and assists in a high degree the effect of the cutting action of the borer.

When the borer makes 5 revolutions per minute, each cutting edge moves with a mean velocity of ·9183 metres (36·73 in.), and with the borer at each revolution penetrates to the extent of ·9 cen-

---

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath, Dr. VON GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

† Literally, "scaffold hole."

metres (3·6 in.), then ·65 cubic centimetres (·416 cubic inch) of stone will be pulverised per second. This gives an expenditure of work per cubic centimetre per second of 136 kilog.-metres, or 15,000 ft.-lbs. per cubic inch. Since, however, the core is so much broken that it can be extracted without any further expenditure of force, the effectual expenditure of work only amounts to 60 kilog.-metres per cubic centimetre (6750 ft.-lbs. per cubic inch) of space bored out in the bore-hole per second.

The work necessary to furnish sufficient water under a pressure of 10 atmospheres for driving the machine, under the assumption of a use of ·71 litres (3·05 cubic feet) per second and a co-efficient for the effectual work of the hydraulic press of 75 per cent., and with the addition of 25 per cent. for accessory hindrances amounts to 1420 metre-kilogrammes (10,224 ft.-lbs.) per second. Hence whilst the effective power of the rock drill amounts to 3-horse power, that of the motor to drive hydraulic press must be 19-horse power.

The following results, which have been obtained with Brandt's rock drill at the Sonnenstein Tunnel, and given in a report by Herr Förster, engineer, may be noticed: With 150 strokes of the hydraulic pistons, and 5 revolutions of the borer per minute, the borer penetrates at the rate of from 4 to 4·5 centim. (1·6 to 1·8 in.) per minute. Hence a bore-hole 1 metre (40 in.) deep will require 25 minutes; since, however, the rock drill must be withdrawn after having penetrated about every foot, for changing the blunted borer, which may be assumed as occupying each time about 3 minutes, the time required to bore a hole 40 in. deep may be taken at about 35 minutes. The section of the tunnel amounted to 7·5 square metres, or 81 square feet; the number of bore-holes per metre advance amounted to from 3 to 4, with a total length of from 16·5 ft. to 18·15 ft. The quantity of dynamite used per metre advance amounted to from 20 lbs. to 22 lbs., or about 2·8 lbs. per cubic metre, or about 2·2 lbs. per cubic yard. Under favourable circumstances a daily advance was obtained at the Sonnenstein Tunnel of 4·6 metres (15·18 ft.), and by a daily advance of 10 ft. the cost per metre (3·28 ft.) amounted to 60s., or about 55s. per yard advance, the daily cost being summarised as follows:—

Wages of nine men (3 per shift of 8 hours) at the machine	£2	3	2
Wages of four men at the steam-engine and boiler (2 per shift of 12 hours)	0	16	0
One mechanic repairing machines, &c.	0	4	8
Coal	1	5	0
66 lbs. of dynamite	3	15	0
Miscellaneous materials	0	16	0
Total	£8	19	10

Since the capital sunk amounted to about 2000*l.*, and with 5 per cent. interest and 10 per cent. depreciation, and counting 300 working days to the year, we require to add another 20s. to this daily cost, which increases the cost per metre advance by 6s. 9d., or per yard advance by 6s. The winning of 1 cubic metre, exclusive of cost of removal of debris, amounts to 8s. 9d. per cubic metre, or 6s. per cubic yard.

This cost is considerably less than that by the use of many of the rock drills driven with compressed air. The driving of No. 5 cross-cut, through porphyry, from Oppelshaft of the Tankeroda State Colliery, amounted to 21·76s., including conveyance; that of the Rothschönberg adit level, in gneiss, cost 35·9s.; the drift at Ronchamp, carboniferous sandstone, cost 28·27s.; and the Sonnenstein Tunnel 16·41s. per cubic metre; of course, the varying nature of the rock, and the convenience for the removal of the debris, &c., would be of great influence in causing the above differences.

The very favourable results obtained with Brandt's rock drill appear to be due to the fact that large and deep bore-holes can be more readily drilled with this than many of the other rock drills, so that a less number of bore-holes are sufficient. Whilst the St. Gothard Tunnel, with a cross-section of 5·5 square metres, required from 16 to 20 bore-holes in the face, and the cross-cut of the Oppelshaft, with a cross-section of 7·8 square metres area, required 46 bore-holes, with a total depth of the 46 holes of 37 metres; the Röthschönberg adit level, with a cross-section of 5·5 square metres area required 39 bore-holes in the face, with a total depth of 39 metres; at Ronchamp, with a cross-section of 5 square metres, 9 to 10 bore-holes with a total depth of 19·4 metres were required; whilst at the Sonnenstein Tunnel (with Brandt's machine), with a cross-section of 7·5 square metres area, 3 to 4 bore-holes, with a total depth of from 5 to 5·5 metres, were required.

The consumption of blasting material used in connection with the above works is very varied. This amounted to 2·8 lbs. at the Sonnenstein Tunnel, 8·8 lbs. at the St. Gothard Tunnel, 6·8 lbs. at the Röthschönberg adit level, and 2·5 lbs. of dynamite, plus ·53 lb. of powder at Ronchamp per cubic metre.

It may not be uninteresting to discuss the question whether the advantage in the use of Brandt's rock drill may not be due to the fact that water and not compressed air is the motive fluid, and we will, therefore, attempt to determine in the case of a pneumatic rock drill the ratio between the effective work and the total power required to drive the air compressor, or to furnish the necessary quantity of compressed air. The rock drill of François and Dubois consumes by 250 blows per minute 0·2 cubic metres of compressed air of 3 atmospheres pressure, and since the velocity of the piston amounts to 1·5 metre per second, and is driven with an average pressure of 92·5 lbs., the theoretical effect of such a machine amounts to 63 metre-kilogrammes (453 ft.-lbs.), or assuming a co-efficient of ·6 as the proportion of actual work, the actual effect of such a machine amounts to 37·5 metre-kilogrammes (270 ft.-lbs.) per second, or about ½-horse power. On the other hand, the work necessary to furnish ·0033 cubic metre compressed air of 3 atmospheres pressure per second amounts theoretically to 134 metre-kilogrammes (965 ft.-lbs.), which assuming a co-efficient of ·6 as that of useful work for the air compressor, requires 225 metre-kilogrammes (1620 ft.-lbs.) gross work, or roundly 3-horse power. According to this the ratio between the useful or effective work of the boring machine and the gross or total work consumed by the air compressor is ½ ÷ 3 = 1-6th.

We have, however, above obtained almost exactly the same proportion—3-19ths—between the effective work of Brandt's hydraulic rock drill (3-horse power) and the gross consumption of work at the hydraulic press (19-horse power), so that in a mechanical point of view there is no advantage from the use of water instead of compressed air as the motive fluid. We must here remark that the above coefficients for the actual work of the machines are simply approximate estimates, and not taken from actual practice, so that the above results are to some extent unreliable.

The question might also be asked whether the advantages of Brandt's machine consist in the employment of a rotating instead of percussive borer; the data for the discussion of such a question, however, are wanting. In the case of the François and Dubois rock drill it may be assumed that in hard rock and with a chisel 3 centimetres broad 2 centim. can be bored per minute, which corresponds to the boring away of a solid portion of rock of ⅓ cubic centimetre content. Since this machine gives a useful effect of ½-horse power, the boring away of 1 cubic centimetre per second requires a gross effect of 2-horse power = 150 metre-kilogrammes (1080 ft.-lbs.) whilst according to the above Brandt's rock drill required a gross effect of 136 metre-kilogs (965 ft.-lbs.) for boring away 1 cubic centimetre per second, in which the space occupied by the loose and broken core is not reckoned; including this latter space as bored by the borer, the consumption of work in the case of Brandt's rock drill is only 2-5ths that required by a percussive rock drill.

In conclusion, we have still to add that the average consumption of water per hour at the Sonnenstein Tunnel amounted to 1·03 litre (4·4 cubic feet) or about half as much again as is required simply for driving the small pistons. The accessory consumption of compressed air by rock drills driven with compressed air amounts to from two to three times as much as is actually necessary for driving the borer; it must, however, be always admitted that the use of compressed air renders the ventilation of places for which otherwise special ventilating arrangements would be required an easy matter, and that by the use of water-power more work is required of the draining and pumping apparatus. On the other hand, a rotary rock drill like that of Brandt's will cost vastly less in repairs than a percussive drill, the annoying throbbing or puffing noise of the latter is avoided, and in the case of Brandt's machine the fixing of the drill in position can be easily and readily effected.

— From the *Berg-und Huettenmannische Zeitung*, Feb. 1878.

ASBESTOS STEAM PACKING.

The incombustible character of asbestos is very generally known, and within the past few years many important applications of it have been made. The Asbestos Manufacture Company of Glasgow are amongst those who have been turning it to good account; they have been largely introducing it for steam packing, and for this purpose it has proved in every respect satisfactory. The form which has been longest in use is the ordinary steam packing, which has the great advantage of being indestructable and self-lubricative to a greater degree than other packings. It was first introduced just seven years ago by testing it upon a fast passenger engine on the Caledonian Railway, a heavy goods engine on the North British Railway, and in one of the Anchor Line steamers. In the trial on the Caledonian Railway the asbestos packing was put into a piston-rod stuffing-box, and when the engine had run 14,070 miles Mr. B. Conner, the locomotive superintendent, gave a very favourable report upon it. He stated that the advantages of it over others were that it was practically incombustible and did not waste; when taken out it seemed to him as fresh as when put in. He explained that at the high temperature of steam of from 125 to 130 lbs. pressure the lower portion of all other packing got thoroughly charred, and a new ring had to be put in after the first week, and so on. Mr. Ewart, connected with the same railway, added that the engine had run nearly four months, and he had taken out the packing, not because it was used up, but for the purpose of exhibiting it at that meeting. The engine ran over 2000 miles without its being necessary to screw up the gland; it was the best packing that had come under his notice during an experience of a quarter of a century. Almost innumerable other opinions equally satisfactory have since been received.

The great success which attended the application of asbestos as a packing for engines induced the company to apply it in the form of asbestos millboard for packing joints of all kinds, and the results have fully confirmed anticipations. Its indestructible properties, established by its use as an engine packing, peculiarly fit it for steam and other joints, especially where high temperature and great pressure are to be withstood. All vegetable and fibrous materials hitherto used for joints have failed, owing to their deficiency in power to withstand high temperatures. Asbestos, however, possesses this most requisite property, even to the extent of resisting the action of flame, besides which, in the manufactured state, it is of a somewhat elastic nature and pliable, while it is so close in texture as to be practically impermeable. It is also unaffected by acids, and is in no way injured by rust.

For joints asbestos millboard is cut into rings of all sizes similar to those of india-rubber. Numerous experiments have been made to test the efficiency of the material in this capacity, and these have satisfied the most sanguine expectations. It has been used in circumstances wherein it was exposed to flame continuously, which it has successfully resisted for months. The jointing is in use in locomotive domes, steam-chest covers, manholes, cylinders, and pipe joints. These tests, which have been of the most severe nature, give the company every confidence in offering this new jointing material to the trade, and they feel assured that a trial will bear out all that has been said in its favour.

The success of the millboard jointing led to a still further effort at extension, and it was next determined to manufacture an asbestos jointing in the form of a paste or cement, and from the experience derived from a long series of tests it is found to be particularly valuable for jointing tanks, cisterns or holders of acids, oils, high-pressure steam, hot water, and such like, as it is thoroughly impervious to acids in any shape or form, and is unaffected by any ordinary heat, whilst it is cheaper and more easily applied than preparations of red and white leads or india-rubber. The simplicity of application too is one of the greatest recommendations of the asbestos manufactures in whatever forms they are used. In applying the packing, for example, it is only necessary to cut the rings a little larger than will go round the rod, put them in the stuffing-box, breaking joint each time, and drive them down with a wooden wedge, or if small sized packing be used it may be coiled in without cutting in rings. The stuffing-box is well filled and screwed up very lightly at first. Until the cover which holds the asbestos together be worn off there is sometimes a little heat and smoke, but this need cause no uneasiness as the packing will not burn nor blow out. When the wrapping is worn off, which will usually be in three or four weeks, no lubricator whatever is required. The packing appears to be altogether one of the best in the market.

IMPROVEMENTS IN TUBE WELLS.

In the usual method of sinking tube wells much of the power available for forcing down the tube is lost through the great distance from the point at which the blow is necessarily given, but a very ingenious remedy has been provided by Messrs. LE GRAND and SUTCLIFF, of Bunhill-row. In constructing tube wells according to their invention, instead of sinking the tube at or above the surface by means of a monkey or weight falling upon the top of the tube or upon a clamp, the blow is given immediately above the point at its lower extremity by means of an elongated weight small enough to pass down the inside of the tube to be driven. This weight is raised and allowed to drop inside the tube by means of a rope, chain, rods, or other appliances, either lifted direct or by pulleys attached to the tube itself, or by other suitable means. The weight, by preference, is shod with steel. In some cases they make the first tube about 3 ft. long, with a clean bore slightly smaller in internal diameter than those which are to follow it; the driving weight is in this case packed with a leather cup or other suitable packing sufficient to allow it to pass loosely down the tubes until it comes to the small or bottom pipe, where it fits more closely, so that when raised it produces a partial vacuum, which not only obviates any compression of air that might take place during the fall of the weight, and so partially impede the force of the impact, but on the contrary accelerates the fall and increases the effect of the blow. Instead of striking the blow at the bottom of the tube, a stout collar or ring to form a ledge inside the tube may be placed at the first joint—say, 2 ft. or 3 ft. from bottom of tube—upon which a cylindrical block of iron or steel can be laid to receive the blow of the monkey or driving weight. This block is provided with a keyhole, so that it can be fished up and lowered by a key attached to a rod.

Tubular piles may also be driven by these means, and this method of driving is especially applicable where piles have to be driven in many feet of water, as they can be driven as easily in the deep bed of a river as on dry land; they can also be afterwards filled with fine concrete to increase their strength. When necessary, to prevent sand or fine earth getting into the lower perforated end of a well tube during the time of driving, a short thin inner tube closed at bottom and shod with steel is dropped into the tube well, and is withdrawn when the well is driven. This inner tube can either be made so as to be withdrawn separately, or it can consist of a tube or tubes sufficiently long for the driving weight to work within its length, and for an inner flange to be screwed on to its upper extremity, so that when the driving weight is pulled right up it brings the inner tube with it.

Where tube wells have to be driven into fine or quick sands it has hitherto been the practice to make use of a larger tube perforated throughout with large holes and lined with an annular filter. The disadvantage of this method is that it has to be driven into the ground, and in passing through loam or clay the holes get completely blocked up before reaching the water-bearing seam, and it is very difficult to free the filter; and, further, if after a few years the filter becomes choked, it is necessary to pull the whole tube well up to clear it. To avoid these evils they drive down the tube with the usual perforated point at its lower end, and by preference form the point with more holes, either the same size as usual or larger, and when the tube well has been driven into the water-bearing seam and cleared from loam, &c., by the usual plan of pumping it out by smaller tubes, they then lower a tapered filter tube made of fine perforated brass or other suitable material (by preference electro-plated), through which the water will freely filter and shut back all the sand. To prevent the sand coming up round the outside of this taper filter tube, either a packing can be put round the top, which, while being sufficiently free to allow it being pushed down the tube well, fits close enough to prevent any sand getting past; or they provide a taper seating at the first joint of the tube well immediately above the bottom perforated tube, and the top of the filter is made taper to correspond, so that it will wedge itself securely and shut back the sand. Should this taper filter become choked it can be readily withdrawn by lowering a suitable key attached to a rod.

When large open pipes have to be inserted into the ground, either for procuring a supply of water out of gravel soil or to shut out the gravel, a heavy pointed cylinder of the same diameter as the pipe is raised and allowed to fall and punch its way into the gravel, ramming it so tight all round that the hole retains its shape down to the depth required with little fear of its falling in; but should the gravel lay exceptionally loose a small quantity of clay can be put down the hole from time to time to make it bind; after the hole has been punched the depth required the punch or piercer is withdrawn, and the pipes are inserted in the hole thus made. In withdrawing tubes from the earth where they have been driven into very hard soils they are commonly knocked up by reversing the blow of the monkey, but the labour of so doing is very great; this heavy labour they entirely overcome by suspending the driving weight by means of one or more stout india-rubber springs, which take the whole weight, and the force required to strike an upward blow is little more than that of overcoming its inertia, as the rebound after each blow is almost sufficient to bring the driving weight up to the striking point. Metal springs or counterpoise weights will accomplish the same results. In some cases they also employ for the same purpose a forked lever, the fulcrum of which can be altered according to the power required to be exerted. The lever in itself may be but very short, and be formed with a socket to receive the end of a length of the well tube, which will form the lever handle. By preference they make this lever of a double form upon one sole plate, so as to equalise the pressure on both sides. In order to avoid having to shift the clamp against which the lever presses each time the pipe is raised, they employ a collar of iron about 9 in. long having a deep thread on its outside, and two pawls fixed on to the jaws of the lever catch into the teeth of the collar at any point desired.

UTILISATION OF MIXED ORES—No. III.

TREATING AND SEPARATING CERTAIN COMPLEX METALLIC COMPOUNDS.

But it not unfrequently happens that ores and metallic compounds far more complex than those already mentioned have to be dealt with, yet many of these Mr. Maxwell-Lyte makes to yield even more profitable results by a process of heating with sulphuric acid and subsequent extraction of the metals by means of hot brine. This sulphatation and brine process is another form of combined wet and dry process, suitable to the treatment of argentiferous, cupriferous, plumbiferous, and certain antimonial minerals, lead, ashes, and some of the metallic residues from dye and chemical works. Where zinc or earthy bases are present, in not too large a proportion, this process will be found especially convenient and economical, and in countries where muriatic acid is dear it will in all cases entirely supersede the former process. The process is applicable to the extraction of silver from siliceous ores, and to the treatment of some of the richer argentiferous galena occurring in siliceous or baryta matrix, frequently occurring in many parts of the world. Many of the lead and silver ores of Spain, Austria, France, Italy, England, and North America are advantageously treatable by this method. The ore having been finely ground, and, if requisite, calcined to expel most of the sulphur or arsenic it may contain, is to be thoroughly wetted throughout with sulphuric acid. The quantity of acid employed should be such as to be able to convert into sulphates all the attackable bases the ore may contain. The mixture of acid with the ore is placed in a stove or furnace and gradually heated (not too strongly) and may be stirred with an iron rake till the heavy white fumes of sulphuric acid, at first disengaged, begin to diminish. This will mark the completion of the sulphatation.

The material will often be found to have somewhat agglomerated, and to have become lumpy and of a dirty-white colour under this treatment. If requisite it should again be passed through the mill to reduce it to powder. Should it contain any copper or very much zinc, it may be wetted again with a very little weak sulphuric acid, and exposed to the air on a floor in a shed or area, when, by absorption of oxygen, any copper present passes into a soluble state as sulphate of copper. This and any zinc present may then be extracted by one washing and decantation. The insoluble residue is now to be treated with boiling brine, which may be poured over it or boiled up with in the same tub or vessel from which the zinc or copper solution has been decanted—say, 3 or 4 of salt (12 or 16 of brine) to each one of metallic lead the ore contained, and to this brine may advantageously be added about 1 or 2 per cent. of hydrochloric acid, unless antimony be present. This acid immensely increases the solubility of the lead in the brine, which should be as strong as possible, marking 1·16 to 1·19 specific gravity. It will often be found convenient in treating silver ores to add to the mixture some salt of lead, such as (say) the sulphate or chloride, which may be obtained at very low prices from chemical or dye works, or lead may be introduced into the mixture by grinding some galena or other ore of lead with the ore about to be treated, and this during calcination becomes more or less converted into sulphate, while the sulphuric acid treatment completes this conversion.

The only use of adding this lead is that it facilitates the subsequent solution, reduction, collection, fusion, and refining of the silver. If requisite, a fresh quantity of the acid brine may be poured on and brought to boil, and the gangue will be now for certain found to be completely exhausted of all its lead and silver, but the first charge of brine will in most cases be found to be practically sufficient if the sulphatation has been properly conducted. The brine, containing all the lead and silver, is now decanted from the exhausted gangue, and lumps of zinc are immersed in it, and, as in the former case already described, the lead and silver are thrown down as spongy argentiferous lead, and, having been washed, it may be collected by a filter press, or otherwise and pressed into bricks, and is ready for fusion, as in the chlorination process already described. It now only remains to deal with the zinc or copper solution. If one or other or both of these metals were present in the ore, they will be found in solution in the decanted liquor arising from the first washing of the ore after sulphatation. By plunging lumps of zinc into this solution the copper is all precipitated, and may be collected like the lead, as already described. Iron also precipitates copper in the brine solution, and if the sulphated ore be treated directly with boiling brine, and some iron immersed in it, all the copper may be thrown down, while the lead remains in solution. Some silver in this case may precipitate with the copper. This is another variation of the process. In this the brine becomes gradually charged with zinc. This does not appear to interfere much with its solvent powers for the lead and silver, and it may be employed over and over again. It is convenient, however, so soon as it contains enough zinc to make the recovery of that metal worth while, to precipitate the zinc as rough oxide, with the same precautions as before described, and after being washed and pressed into bricks this oxide of zinc is ready to be distilled. However, besides zinc, the solutions contain large quantities of sulphuric acid, and this not only tends to interfere with the solvent action of the brine upon the lead, but if present in large quantity when the zinc is precipitated by the milk of lime, this sulphuric acid is thrown down with the lime as sulphate of lime, and very prejudicially contaminates the rough zinc oxide.

But fortunately a remedy is readily found. It is merely necessary to add to the solution some of the liquor containing calcium-chloride resulting from a former precipitation of rough zinc oxide. This throws down the excess of sulphuric acid present, and the supernatant liquid thus maintained in a fitting condition is able to be decanted or filtered off from the precipitated sulphate of lime, which rapidly subsides. Many silver ores contain that metal in the form of antimonide (ruby silver ore) and sulphantimonide (silver glance), or else with rich argentiferous galena and other sulphurets. Such ores flour the mercury if treated by amalgamation, and a large part of the silver passing off into the alimes is either lost or can only be recovered by costly modes of treatment. Thus many mines, though containing ores rich in silver, produce but relatively little profits. Ores of this description should be treated by the sulphatation and brine process, and from some trials made on a sufficiently large scale the author is satisfied that large profits may be here realised from the mere saving on the loss of silver.

BOILER FLUES.—An experiment has been made at the works of the Leeds Forge Company, Leeds, in the presence of representatives of the Admiralty, the Board of Trade, Lloyd's Registry, the principal railway companies in England, and the chief engineering firms of London, Glasgow, Leeds, Liverpool, &c. The experiment consisted in testing comparatively a plain boiler flue and a Fox's patent corrugated boiler flue by means of hydraulic pressure. In the case of the plain flue it was found that the utmost pressure it could stand

was 200 lbs.; the corrugated flue, when put to the test, yielded 1-32d of an inch at a pressure of 400 lbs., but at 450 lbs. it bulged inwards to the depth of 2 in. On examination it was found that at the point of collapse there was a defect in the welding, which was afterwards inspected by the representatives of the Admiralty, Board of Trade, and Lloyd's. Previous tests of the corrugated flue have proved that it is equal to withstand a pressure of 1000 lbs.

COAL CLEANSING.

Mr. M. Geoffrey Morgans, mining engineer of Bristol, delivered at the Bristol Mining School a lecture on "Coal Cleansing," the chair being occupied by Mr. Handel Cossham, who remarked that, as they had last session the opportunity of listening to a lecture by Mr. M. G. Johnson on "Coal Washing," as practised in this country, it gave him pleasure to announce that Mr. Morgans would now be able to lay before them information as to the methods which were in successful operation on the Continent, where the subject had received great attention.

The LECTURER first remarked that, owing to having made arrangements for the accommodation of other gentlemen whose names were down for lectures, whereby his own now came off two months earlier than expected, he had been unable to complete the prosecution of experiments in two branches of his subject—(1) cleansing by means of centrifugal force, and (2) by means of atmospheric air as a medium for separation, and consequently his subject would be more or less limited to cleansing by means of liquid media. He proposed to deal first with the principles affecting the separation of different minerals by combined flotation and gravitation, and next to describe, with the aid of the numerous drawings and photographs exhibited, some of the most modern plant and machinery for carrying out those principles, directing particular attention to some practical details of construction upon which depended in a great measure the successful operation of various continental coal-washing establishments, which are greatly superior to anything at work in this country. Samples of coal, coke, and refuse products were exhibited, as well as specimens of the raw material treated in the various cases. These were the more interesting on account of being accompanied by particulars as to analyses, yields, and working costs. After illustrating the influence of form upon the descent of equivalent weights of the same description of material, the lecturer dwelt upon the importance of sizing coal, and described the best machinery for the purpose, special reference being made to "trommel," in which the various sizes of coal were discharged with the least possible travel and breakage. Of the various cases referred to, one related to an establishment where a quantity of 550 tons of coal is treated per ten-hour shift, in which the ash admixture was reduced from 18 to 3 per cent. at a working cost of 1s. 4d. per ton of mineral treated. Particulars of the cost of this plant were also given. The lecturer gave a very practical description of machines specially constructed for washing coal dust and slimes, which, until of late, have been discarded. In one case, accumulated slimes from earlier washing operations, containing 25 per cent. of ash, are being successfully cleansed, so as to yield a useful product containing only from 4 to 5 per cent. of ash. A very good coke made from this product was exhibited. Great strides have been made in the successful use of the same water over and over again in coal washing. This is often important where, from the danger of river pollution, it is desirable to prevent the discharge of water holding mineral particles in suspension. In some cases referred to the escape of effluent water is entirely avoided, and the washed coal is so thoroughly drained of water that the quantity necessary to be added to compensate for loss in this direction (which is the only waste of water incurred) is surprisingly small. Time prevented the lecturer from dealing with the subject of freeing water from minerals in suspension without the aid of settling tanks. The lecture was concluded by reference to the subject of crushing coal and its effect upon the quality of coke as seen in various samples exhibited.

A vote of thanks to Mr. Morgans was proposed by Mr. Cossham for his able and instructive lecture. Mr. Cossham expressed a hope that the information afforded would be published, jointly with some of the other lectures of the course, for the use of those interested in the successful working of collieries.

TRAMCAR PROPULSION.

As there are doubtless many localities in which mechanical propulsion on tramways would be altogether unobjectionable, it is desirable that even those opposed to the principle should be convinced that really good inventions are in the market. The Americans are, as usual, among the foremost, and the invention of Mr. J. B. TIBBITTS, of Hoosick, New York, is considered worthy of a trial; it relates to apparatus for propelling tramway cars by means of steam-engines or other similar motors, and it consists of a frame suspended centrally from the car frame, and carrying two shafts, upon which friction wheels are secured. The supports for the said shafts are capable of both vertical and lateral motion. The invention further consists in the arrangement of two wheels revolving on inclined axes in contact with the rail and with the friction wheels before mentioned.

The principal object of the invention is to concentrate as much as possible of the weight of the load at one point—that is, at the point at which the driving power is applied at the moment of starting, and thereafter as the car progresses to a greater or less degree, according to the resistance of the gradient and varying weight of the load. The propelling apparatus is supported upon a cross timber attached to the frame of the car, and provided with the vertical dovetail ways, to which slides are fitted, which are also provided with transverse dovetail ways, and upon these are placed supports for vertical shafts. The transverse ways are chambered out to receive a spring made of india-rubber, steel, or other suitable material. The ends of the spring rest against lugs formed on the back of the supports of the vertical shafts, and tend to force the said supports apart. Small friction wheels are secured to the vertical shafts upon which bear inclined wheels having right-angled grooves lined with india-rubber or other elastic material fitted to the elevated portion of the rail and to the friction wheels. The inclined wheels are also provided with a bevelled surface which runs in contact with or near the lower portion of the rail. The axles of these inclined wheels run in boxes that are pivoted between arms rigidly secured together by a cross bar, and pivoted to studs that project downward from the frame of the car.

It will be seen that the downward pressure of the vertical shafts tends to thrust the inclined wheels against the rails diagonally with considerable force. The increase of downward and lateral force increases the bite of the inclined wheels upon the rails, and also increases the friction between them and the friction wheels. Any convenient power may be employed to drive the vertical shafts, and they may be forced apart laterally by means of a spring, as described, or by a suitable arrangement of air-pressure cylinders. In some cases the vertical shafts will be omitted, and the power will be applied directly to the inclined wheels either by a connecting rod connected with a suitable engine, or by means of wire ropes running around sheaves attached to the said wheels. By reversing the action of the wheels and proportioning the thrust to the load, the propelling apparatus becomes an effective means of retarding the car.

TREATING ALKALINE CARBONATES.—Mr. JOHN RILEY, of Liverpool, proposes to make his furnace with two or more fires, one at each end, and the draft hole leading to the chimney in the centre; he prefers to so construct it that it can be rotated and discharged and recharged like a revolver. In place of a damper in the chimney he places it in front, shutting off the air from the grate, and thus allows the smoke to go off the stuff, and not incommode the operators, as it does at present. Continually reciprocating in this furnace on the flat or curved bed he places a revolving rake, like a round harrow, and in each side of it, attached to the same framework, a series of slicers or ploughs (preferably two on each side) to turn over the stuff towards the rake. The frame is attached to long bars projecting through the end or ends of the furnace, and can be made to run on wheels on plates or bars in the furnace. The long bars are actuated reciprocally by link motion, crank, rack, and pinion, or otherwise. The rake or harrow can be turned by chain or other gearing, or can be rotated automatically (as it is drawn along) on the principle of a windmill, the teeth being triangular in section, each with a sharp edge facing in the same direction in the circle of rotation. The resistance being far greater to the flat side than to the sharp edge, drawing it through the mass, causes it to rotate. When the conversion is accomplished the machinery is withdrawn from the furnace; the latter is rotated and its contents discharged; it is then revolved back under the charging spout, charged, and then placed in normal position with the charging hole directly below the chimney; the same hole being used for charging, discharging, and vent for escaping gases.

FOREIGN MINING AND METALLURGY.

Contracts are about to be let at Liége and Charleroi for the delivery of coal required for the Belgian State Railways. The amount of these contracts will be altogether about 181,600 tons. Deliveries are to be made as from June 17. As some time has elapsed since similar adjudications took place, it will be curious and instructive to note the extent of the concessions made by Belgian and other coalowners in order to force sales. Prices of coal do not revive in Belgium; it could not well be otherwise, having regard to the keenness with which business is competed for. The Oriental Review, of Vienna, contains an interesting article from the pen of Baron Von Richthofen on the coal production of China. The writer states that the quantity of coal now raised annually in the Celestial Empire is about 3,000,000 tons. Eighteen provinces of China, as well as Southern Mantchouria, possess coal to such an extent that China is one of the first carboniferous countries in the world. The extent of the coal deposits of China is even more considerable than that or North America. The most important of all the coal producing districts of China—that of Schansi—has no equal as regards situation and the quality of the production. Very good brown hematite iron is also mixed with the excellent coal of the Schansi basin. Baron Von Richthofen expresses his opinion that China could produce annually 300,000,000 tons of coal for a period of 2400 years.

With the exception of Paris, where the demand has not ceased to be active, the French iron markets have remained extremely quiet. The great French railway companies maintain an attitude of the utmost reserve in connection with the giving out of contracts. They appear indeed to be still disposed to wait rather than to profit from the low rates which the present commercial and political situation has involved. The Fives-Lille Company has just delivered the ironwork for a new hippodrome in the Champs-Elysées, Paris. The weight of this ironwork is about 400 tons, and the whole has been completed in rather less than three months. The Commentry and Fourchambault Forges and Foundries Company has fixed its dividend for 1876-77 at 1*l.* 12s. per share, payable half April 15 and half October 15. The Dourges Coal Mines Company has fixed its dividend for 1877 at 5*l.* per share.

In the French coal trade sales have exhibited comparative feebleness; prices have reflected the influence of this state of affairs, and have remained comparatively unremunerative. An official decree authorises the establishment at Douai of a practical school of mines. The utility of such an institution as this must be obvious, as in the Nord and the Pas-de-Calais the number of working miners is 45,000, the annual production of coal in the two departments being 6,600,000 tons. Douai is situated almost in the centre of the coal basin of the Nord, so that the new school will enjoy many valuable advantages. Mr. Schavrow, secretary to the Society for the Encouragement of the National Industry of Russia, has just communicated to the Monde Russe some interesting information with respect to the production of coal in Southern Russia. Mr. Schavrow estimates the coal production of this portion of the Czar's empire at 50,000,000 pouds per annum. The Russian "poud" must not be confounded with the English "pound." The consumption of coal in Southern Russia is estimated by Mr. Schavrow at 61,687,000 pouds per annum, so that some quantity of coal has to be imported annually. Mr. Schavrow, with the view of stimulating the production of coal in Southern Russia, advocates the construction of some more branch railways.

The John Cockerill Company has just concluded a contract for 2000 tons of steel rails to be supplied to the Upper Italy Railway Company. The John Cockerill Company's appliances will enable the company to execute this contract in a few days. The prices obtained were fairly remunerative. During the last few days no change has occurred in the price of pig or iron in Belgium. Belgian producers have been especially directing their attention to the obtaining of foreign orders, and they have succeeded tolerably well in this object. One of the most important Belgian firms is negociating for the construction of some bridges in Holland, but nothing has been at present settled upon the subject. The Belgian Metallurgical and Colliery Company has obtained an order for the ironwork of a bridge over the Sambre; the amount of this contract is 3844*l.*, or 30 per cent. less than the estimate! The Royal Portuguese Railway Company has just let a contract for 18,000 tons of steel rails, at 6*l.* 12s. per ton, delivered at Lisbon. The Bochum Works obtained the contract, in competition with the John Cockerill Company and Krupp, of Essen. The rails contracted for are to be laid down between Lisbon and Entrocamento.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received April 2, 1878, ex Mondego (s.), dated Morro Velho, March 2:—

GOLD EXTRACTED TO DATE.—The produce for the second division of February—a period of ten days—amounts to 12,457·1 oits. = 1436·1007 ozs. troy. It has been derived as follows:—

	Oits.		Tons.		Oits. per ton.
General mineral	5,620·0	from	1141	=	4·920
Mineral free from killas	4,784·5	,,	777	=	6·157
General Praia stamps	1459·3	,,	309	=	4·722
	11,863·8	,,	2227	=	5·327
Retreatment	593·3	,,	—	=	·263
Total	12,457·1	.....	2227	=	5·590

Equal to ... 1436·1007 ozs. troy = ·6553 oz. troy per ton.

Advices received April 15, 1878, ex Elbe (s.), dated Morro Velho, March 18:—

GENERAL OBSERVATIONS.—The work of the establishment during the past month has been carried on with the usual regularity, and, considering circumstances already explained, with satisfactory results.

PRODUCE FOR THE MONTH OF FEBRUARY.

	Oits.		Tons.		Oits. per ton.
General mineral	17,025·3	from	3314	=	5·137
Mineral free from killas	14,130·3	,,	2324	=	6·080
General Praia stamps	4,113·6	,,	865	=	4·755
	35,269·2	,,	6503	=	5·424
Retreatment	1,693·5	,,	—	=	·260
Total	36,962·7	,,	6503	=	5·684

Equal to 4261·1980 ozs. troy = ·6553 oz. troy per ton.

The above low produce has been already explained in the second divisional return for the month. Considering the average yield per ton of the large body of mixed mineral treated, the produce is as much as could be expected. As extension and development is made westerly, with a view to increased stoping area, the removal of the intrusive bodies of quartz and killas separating the rich layers of pure magnetic and pyritic lode becomes necessary.

The general yield of the month's tonnage is lower by 0·56 oits. per ton; and the mineral freed from killas less by 0·960 oits. per ton, as compared with January, owing to a slight decline in the mineral raised from the sump. As extension easterly is made the mineral becomes somewhat less auriferous, the richer and more concentrated portions of the lode being at the present horizon west of same.

COST AND PROFIT.

Produce for February	37,022·7 oits.			
Less loss in melting into bars	366·6 ,,			
	36,656·1 at 7s. 9d. per oit. =	£14,204	4	9¾
Cost		7,504	19	7¾
Profit for the month		£ 6,699	5	1½

The total cost for the month is less than that of January by about 261*l.*, but in consequence of the low produce the profit is not so much by about 1400*l.*

MINE.—Mineral raised from the mine ..... 6493 wagons.
Ditto quarried per borer per diem ..... 1·88 ,,
Average number of borers daily ..... 140·41
Average number of natives daily ..... 222·33

The output is large, and the duty of sinking and driving in the exploratory works very satisfactory.

SUMP.—Since last reported on no alteration calling for remark has taken place in this section of the mine, and, as before advised, very fair sinking has been accomplished.

STOPES 278 A AND B AND 278 A continue to maintain their usual good appearance, the width thereof being 42 ft. and 45 ft. respectively.

SECTIONS 277 B AND 257 C.—In consequence of the borer force having been required elsewhere very little has been done in either of the above sections.

WESTERN SECTIONS 235 C, AND 255 A AND B.—For the future enlargement and extension of these stopes the removal of a more than usual quantity of mixed mineral has been necessary. The indications are favourable, and the width of the lode at this point is from 38 to 40 ft.

SECTIONS 234 B, 258 D, AND 217 C continue much the same as when last reported on, no alteration of any importance having taken place at any of these sections of the formation.

DRIVING 234 A.—In consequence of meeting with a body of very hard quartz, the amount of duty performed in driving during the month has not been quite equal to that of January.

B SHAFT.—The sinking here is being carried on with regularity. The drills are still under suspension, but it is trusted they will be again put to work in a few days.

GOLD EXTRACTED TO DATE.—The produce for the first division of March, a period of eight days, amounts to 10,074 oits., equal to 1161·4258 ozs. troy. It has been derived as follows:—

	Oits.		Tons.		Oits. per ton.
General mineral	4,474·5	from	923	=	4·847
Mineral free from killas	4,115·0	,,	517	=	7·959
Praia stamps	163·5	,,	219	=	4·400
	9,553·0	,,	1659	=	5·758
Retreatment	521·5	,,	—	=	·314
Total	10,074·5	,,	1659	=	6·072

Equal to ... 1161·4258 ozs. troy = ·700 ozs. troy per ton.

The yield per ton is about the same as that for the last division of February, but the produce per diem is less by 100 oits., this is principally owing to a lesser quantity of stone having been stamped. During the third division of February 224 tons were stamped daily, whereas for the first division of March only 207 tons were passed through the stamping mills daily.

MINE.—The return of duty for the first thirteen working days of the present month is as follows, viz.:—

Mineral raised from mine	3549 wagons.
Quarried per borer per diem	2·01 ,,
Average number of borers daily	135·54
Average number of natives daily	210·31

The output of mineral is fully maintained, and the attendance of native borers is about the average.

There is no change to report in any of the sections of the mine, and the general work of the establishment is being carried on without interruption.

The following have been received—

On March 25—Profit for the month (February), 6700*l.*

On March 30—Produce, 11 days (second division of March), 14,000 oits.; yield, 6·1 oitavas per ton=7·6, old measurement.

On April 10—Produce for the month (March), 41,500 oitavas; yield, 7·6, old measurement.

DON PEDRO NORTH DEL REY (Gold).—Report for February: Produce from 2034·38 tons, dry weight, 6506 oits. = 2765*l.* 1s.; cost (including all general expenses, also cost of labour and materials, amounting to 123*l.* 17s., for erection of permanent pumping machinery), 2598*l.* 7s. 10d.—Capt. Vivian reports under date March 18: Produce cleaned up, 2237 oits.—Telegram from Rio, dated April 9, referring to a later date than the above report, advised 4500 oits. for the the month of March.

SANTA BARBARA (Gold).—Mr. Hilcke, Pari, March 14: During February 878 tons of mineral were stamped, producing 3058 oits. of gold and 58 tons of refuse sand re-treated by the pulveriser, yielding 26 oits. of gold, or a total of 3084 oits. of gold, equivalent to 3·512 oits. per ton of stone stamped. This produce of 3084 oits., valued at 8s. 6d. per oit., amounts to 1310*l.* 14s.; the estimated working cost for the month, at Exchange 24¾d., being 1059*l.* 0s. 8d., thus showing an estimated profit of 251*l.* 13s. 4d. for February. The mine captain reports—The quantity of ore raised during the month amounted to 1075 tons, of which 197 tons were rejected as refuse stone, and 878 tons treated at the stamps. Average quantity of ore raised per borer for the month, 25·2 tons.

PITANGUI (Gold).—Mr. Hilcke (Pari, March 14) reports that the adit had been driven a distance of 4 fms. 4 ft. during February, and that the rock had undergone a favourable change, having become softer, and it can now be worked without blasting; but owing to its jointy nature, timbering was required. A large stream of water was issuing from the adit. Total length of adit on Feb. 28, 98 fms. 5½ ft.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, $90,000, from 1100 tons of ore; week's produce of refinery, $40,000.

— R. Rickard, March 27: During the past week operations both in mine and furnaces have been carried on with the usual regularity, and with very good results. The 200 drift is being driven on the quartzite; the ground is very favourable for drifting, but at present there is no ore. The 400 main drift has been driven since my last 15 ft., with ore all the distance. The winze below this level has been sunk 25 ft. in ore; the first 12 ft. was in high grade ore, and the other 13 ft. in low grade ore; the bottom is looking better, and is now turning out average grade ore. No. 4 chamber is turning out well, and improving daily. No. 5 chamber is opening out well. The same can be said of No. 7. These two chambers have been connected by a rise and drift 100 ft. in length, with good ore all the distance. All the drifts in the mine are without any material alteration since my last. The furnaces are doing well, and smelting large quantities of ore, and still in very good working order after nearly seven months' run.

GOLD RUN.—J. A. Stone, March 28: I cleaned up on the 26th instant after a run of 22¾ days. After retorting and melting I obtained 281·40 ozs. in solid bar, which I think will coin about $5250. The expense of the run is near $3750, leaving net $1500. This result I regard as very encouraging, and especially so when I take into account the difficulties I have encountered, and also the fact that as yet I have been able to wash and clean but a very small part of the bed-rock which is covered by my blast, and that only by means of blasting a cut through the bed-rock. Since my last clean up considerably more time has elapsed than I have occupied in washing, partially caused by the permanent work which I have been obliged to do in the bed-rock cut. My washing was delayed one week by the breaking of the Cedar Creek ditch, thereby cutting off my water supply. I also shut down four days for the Miners' Ditch Company to repair their flume and put in additional rails. Much of the time I did wash the Miners' Ditch Company's flume run so poorly that I did not wash nearly the quantity of gravel I could have done if their flume had worked as it ought. They have put three additional rails from the junction of my flume down to their main flume, and now that portion of their flume does not trouble much, it runs so much better that they have decided to fix their main flume in the same way as soon as the rails can be procured. If the blocks will last to make as long a run as the one which is just completed I expect to make a much better run than any yet made, and I hope to make a good remittance.

COLORADO UNITED.—April 16: The following cable reached the secretary this morning:—"Mortgage unnecessary, mine about out of debt—Moffat." The mortgage deed, of which notice was given in the last circular to the shareholders, was countersigned by the directors, and posted to Mr. Moffat, to reach him about the date of the above message. During the interval the superintendent has made such progress in the payment of the general debt of the company out of profit that he considers the mortgage unnecessary, in the expectation that he will soon liquidate the entire debt in full.

BIRDSEYE CREEK.—G. S. Powers, March 25: We exploded a blast at Neece and West claim of 520 kegs of powder on the 22nd, which I think did splendid execution, and since that time we have been running all the water from this side on this claim. The rock is still pitching at Waloupa, and we are at present blasting down the rock-cut leading to the shaft. Red Dog is washing as usual, with a prospect of making about the same results as last month. The weather is fine, and I am inclined to think that our storms for this season are about over. The water holds up well, but I feel sure that the summer supply will be short. I cleaned up about $900 from the tail flumes in Neece claim on the 24th. This with the $1800 mentioned in my last, taken out at Red Dog, was sent to the mint on the 22nd, and I have not yet received the mint certificate.

BLUE TENT.—D. T. Hughes, March 23: We exploded our blast at South Yuba at 9 P.M. on the 20th, and commenced washing on it the next morning. It was charged with 15,000 lbs. of powder, with very satisfactory results, and tore up a large quantity of ground. This would have been a very heavy blast had it not been that we had washed off much of the top strata through the Gopher sluice. After a few days more we shall be able to run quite steadily from this claim (South Yuba) I hope, now we have considerable broken time, as by the explosion a large quantity of rocks and pipe-clay was thrown in front, which has to be removed before we can penetrate the bank proper; the ground in the bank looks well, and favourable for good results. Everything is pressed on here with much vigour, as we hope to make a good showing by the time the season closes. At Blue Lead the broken ground proves very lumpy and rather expensive to break up, nevertheless we have washed off quite a large quantity of ground here already, and have much left yet to wash. With the Gopher sluice we have progressed quite satisfactorily since we commenced, and have removed a large mass of the heavy cement deposit over the South Yuba ground, and as we are considerably in advance of the latter workings we intend to use only surplus water on the Gopher for the balance of this season. No trouble with ditch the past week, and we had a fine stream of water during the whole time, very little of which came from the small ditches.

ANTIOQUIA (Frontino).—By the mid-monthly mail the directors received advices under date Feb. 12, accompanied by a remittance of gold valued at 282*l.*, the produce of the mines and of the gold purchased at the mines for the month ending Jan. 30. These accounts should have reached England at the beginning of the present month. The following statement of the profit and loss for January was published on Saturday, April 13, the day after the aarival of the mid-monthly mail:—77 tons of ore produced 100 ozs. of gold (average 24·6 dwts.), 286*l.*; cost at the mines at Medellin and in London, 344*l.*; loss, 58*l.*

FRONTINO AND BOLIVIA.—By the mid-monthly mail the directore received advices under date Feb. 12, accompanied by a remittance of gold valued at 2194*l.*, the produce of the mines and of the gold purchased at the mines for the month ending Jan. 30. These accounts should have reached England at the beginning of the month. The following statement of profit and loss for January was published on Saturday, the 13th inst., the day after the arrival of the mid-monthly mail:—530 tons produced 689 ozs. (average 1 oz. 6 dwts. per ton); gold bought, 257¾ ozs.: total, 946¾ ozs.; value, 2194*l.*—Cost of the mines at Medellin and in London, 1196*l.*; gold bought, 544*l.*=1740*l.*: profit, 453*l.* In addition to the monthly cost of 1196*l.* 4s. 8d., the sum of 116*l.* 13s. 4d. has been expended on capital account. During the month of January only 33 tons were treated from the Silencio, which realised 193 ozs. of gold (nearly 6 ozs. per ton), and the Palmichila 173 ozs. from 89 tons, an average of nearly 2 ozs. per ton.

EBERHARDT.—Frank Drake, March 26: I herewith forward to you the results of assays from ore taken from the drift in the tunnel, and also from the face of the tunnel. March, 14, $6·75 $3·14, $4·38 $3·76, $2·50, $2·18, $3·14; March 23, $4·70, $3·14, $10·50, $1·56, $7·21, $4·70, $21·83, $3·45; March 24, $8·70; face of tunnel, $3·45, $4·70. These assays average about the same as those previously forwarded to you, but I wish to give you the exact figures, as you can know the grade of quartz rock we are working in. I have commenced a cross-cut from the top of the rise—40 ft. from the level of the tunnel—driving north, and have driven 6 ft. The quartz is not quite so much broken as we had it in the last 10 ft. of the rise. Altogether it is looking very favourable. There is nothing in the winze that looks flattering. A few days will determine whether I continue this work or not. The face of the tunnel is running in vein matter, and is carrying some silver. The rock has been been very hard, causing the contractor to make but slow progress; but we are all in hope that we shall meet with a change very soon, and I believe it will be favourable to us. The ore in the old mine is still quite good, what there is of it, but can last but a very short time unless it opens out again, but I do not

k it will. I believe that it will not pay to expend but a little more of our s on the mine, for the tunnel is much more promising. Will keep you posted any important change that takes place.

USITANIAN.—April 9: Palhal Mine: Levels on Basto's Lode: The lode in 200, east of Taylor's, is 3 ft. wide, composed of country, quartz, and stones of The lode in the 2·0, west of Taylor's, is worth 2 tons per fathom. The lode he 190, east of Taylor's, is 4 ft. wide, composed of quartz, and good orey stones, not enough to value; we are looking for an improvement. The lode in the east of Taylor's, is from 4 to 5 ft. wide, of quartz, and spots of ore.—Stopes on o's Lode: Below the 200, east of Taylor's, the lode has been poor, but we hope et ore soon. Above the 2·0, east of Taylor's, the lode is worth 2 tons per fm. w the 190, west of 109 winze, the lode is worth 3 tons per fathom. Below the west of 109 winze, the lode is worth 1½ ton per fathom. Above the 28, east of winze, the lode is worth 1½ ton per fathom—producing lead. Below the 190, of 109 winze, is worth 3 tons per fathom. Above the 200, east of Taylor's, the is worth 2 tons per fathom.—Carvalhal Mine: The lode in the north deep adit , west of the slide on the north lode, is 6 to 8 in. wide, composed of quartz, ntry, and at times crystals of lead, but of no value. The lode in the winze w the top adit level, on the valley lode, is 6 in. wide, with spots of lead in it.

LAMILLOS.—April 3: The lode in the 40, west of San Felipe, has declined in e, and is much easier for driving. In the 20, west of San Felipe, a slight im- ement has taken place, now worth ½ ton per fathom. In the 25, west of bercrombie's, no lode of value has been met with. There is no improvement in 40, west of Abercrombie's. In the 40, east of San Enrique's, the lode is very ular, and yields good stones of ore, worth ½ ton per fathom. The lode in the east of Taylor's, continues unproductive. In the 100, west of Taylor's, a t length of rich lode was laid open in the past month, yielding 2 tons per fm. driving of the 85, west of San Adriano, is resumed, and the lode is looking well, producing 1 ton per fathom. The lode in the 60, east of San Victor, become much softer. In the 70, east of San Victor, the lode is rich in the om of the level, but the upper part is poor, worth on the whole 1 ton per thom. The lode in the 70, west of San Victor, is large, st ong, and regular, and tains spots of ore. The 60, west of San Victor, has somewhat improved, but es not as yet contain ore of any value. The lode in the 30, east of air shaft, is y easy, and at the present without ore. In the 30, west of air shaft, a good gth of rich lode is being driven through, producing 1½ ton per fathom. In 40, south of San Carlos, there is no change of importance in this cross-cut. 30, east of San Jose's, is suspended for the present. The lode in the 40, east Judd's, is again improving, worth ½ ton per fathom. In the 50, east of Judd's, lode is divided into sundry branches, each carrying ore, and worth on the ole 1 ton per fathom. The 50, east of Judd's cross-cut, has improved a little the past fortnight, now worth ½ ton per fathom. The lode in the 70, east of Judd's shaft, is unproductive at present. In the driving of the 70, west of Judd's aft, no lode of value has been met with. Lozano's winze, below the 65, is holed the 85. Fermin's winze, below the 80, will be holed to the 60 in the present nth. The weekly weighings of ore were kept up very regularly during the st month, and the stopes are yielding well at present. The machinery through the mine is in good condition, and the works at surface are kept up very re- arly. We estimate the raisings for April at 200 tons.

LA ESTOSA.—April 5: The 50 metre plat is completed, and shows several mine- ralised branches going down east of the lode. The lode in La Cruz shaft winze, low the 50 metre level, is variable in size and character; at present it is small, having blocks of dolomite spotted with lead ore. The 50 metre level south has en driven the last few fathoms on a western branch, which promises well, but it is now small and poor; it drops into main lode deeper, and will be seen there— spended. The rise from the 50 metre level, against ventilation winze, is being t up flatly to meet the winze, which is to be east of the level. The lode ventilation winze, below adit, is composed of a flookan branch, with branches ale spar in stiff limestone. The cross cut west from the 50 metre level south being driven by men at tackle (hauling from the 50 metre level) to prove a side nch; a part of it is already cut, and shows a good pocket of calamine. The La Cruz deep adit, driving north, continues in calamine rock and clay-slate, yielding hing to save—suspended.

LINARES.—April 3: In the 120, east of San Toma's, there is a large open lode, and in the past month very easy for driving. In the 135, south of San Tomas, the granite is very hard. The lode in the 100, east of Warne's, is wide and easy, t much diminished in value. In the 115, west of Warne's, the lode is of a very omising appearance, and yields good stones of ore. The lode in the 115 fm. vel, east of Warne's, contains small spots of ore. The 120, west of Peill's, ntinues to open up well, yielding 1 ton per fathom. In the 105, west of Peill's, reat length of fine lode was driven through in the past month, worth 2 tons r fathom. The lode in the 90, west of Peill's, is small and very regular, pro- cing 1 ton per fathom. In the 120, east of Peill's, a great length of valuable de was opened out in the past month, worth 1 ton per fathom. In the 105, east San Francisco, a hard bar of unproductive ground is being driven through. The east of San Francisco, continues to lay open valuable orey ground, worth 1½ ton r fathom. The stopes produced the usual quantity of mineral in the past nth, and have not undergone any change of importance. The works at sur- ce are kept on very steadily, and the machinery is in good working conditio We estimate the raisings for April at 200 tons.—Quinientos Mine: The lode in the 0, west of Taylor's, is very small, and the ground hard. In the 90, west of Tay- r's, the lode has improved, and looks promising, worth ½ ton per fathom. The lode in the 80, west of Taylor's, is open and easy for driving, yielding 1 ton pe fathom. In the 100, east of Taylor's, the lode is small and unproductive. In the , east of Taylor's, the lode at this point is disarranged, and of no value. The de in the 80, east of Addis's, is quite unproductive. In the 80, west of San Carlos, here is no improvement. The lode in the 80, east of San Carlos, is strong and gular, and contains spots of ore. The 65, east of Judd's, has improved, and ields good stones of ore. Laborde's winze, sinking below the 65, is holed to the . The lode in Cano's winze, below the 90, is open and easy for sinking, and con- ins good lumps of ore, worth ½ ton per fathom. We estimate the raisings for pril at 100 tons.

FORTUNA.—April 3: Canada Incosa: In the 120, west of O'Shea's shaft, the ode is small, but contains good spots of ore. The lode in the 110, west of Judd's, as split, and is entirely without ore. In the 30, east of San Carlos, no lode of alue has yet been met with; the ground is soft and easy. The lode in the 50, est of Abercrombie's, has greatly improved, and now yields fine lumps of ore, orth ¾ ton per fathom. In the 60, west of Abercrombie's, there are several anches containing lead ore in the end. The lode in the 50, east of Abercrombie's, s large, and yields occasional good stones of ore. The 70, west of San Pedro, is eing driven through a length of unproductive ground. The lode in the 80, west f San Pedro, is very large, and composed of quartz and rich patches of lead ore, ielding ½ ton per fathom. In the 80, east of San Pedro, the lode continues egular, but the ground is hard; lode worth ¾ ton per fathom. The 70, east of an Pedro, is opening a great length of good ground; producing 1¼ ton per fm. n the 120, east of O'Shea's, the lode is very small, composed of quartz, with spots f lead ore. The 100, west of Lownde's, has greatly improved, and the ground asy for driving; valued at 1 ton per fathom. The lode in the 100, east of owndе's, is large and open, and will doubtless shortly improve; at present worth ton per fathom. In the 90, east of Caro's, the lode is disordered by cross-joints, nd is at present poor, and the ground hard. The lode in Pasco's winze, below the , is large, containing lead ore throughout; worth 1¼ ton per fathom. In ampbell's winze, below the 90, no lode of value is being sunk through. The lode is Duke's winze, below the 60, has slightly fallen off in value, but still yielding ton per fathom.

Los Salidos: The lode in the 140, west of Morris's, yields good spots of lead ore, ut not enough to value. In the 140, east of Morris's, the lode is large, and yields he rocks of lead ore, valued at 1 ton per fathom. The lode in the 130, west of uenos Amigos, is small and valueless, and the ground hard. In the 130, east f Morris's, there is a large strong lode, composed of hard quartz. The 120, east of Cox's, is opening up splendid ore ground, producing 3 tons per fathom. The ode in the 110, east of San Miguel's, is compact and regular, and produces very ood stones of ore, worth 1 ton per fathom. The 25, west of Swaffield's, has im- roved during the past fortnight, now producing ¾ ton per fathom. In the 55, est of Swaffield's, the lode and ground continue very disordered and poor. In he 65, west of Palgrave's, very good ground has been, and continues to be, pened, yielding 1½ ton per fathom. The lode in the 65, east of Palgrave's, is ompact, and produces good lumps of ore, worth ¾ ton per fathom. In the 35, ast of Palgrave's, the lode is very large, but does not contain enough ore to value. algrave's engine-shaft, sinking below the 65, is down, and preparations are being ade for driving towards the lode.

VIRNEBERG (Copper).—R. R. Roskilley, April 9: Setting Report for April The 140 metre level to drive south of shaft, by six men, at 80 marks per metre; he lode in this end, although it has become somewhat harder for progress, has within the last 6 ft. driving much improved for copper ore; a fine promising lode. We have suspended the rise in the back of this level for the present, because of its being near to the 120 metre level; this rise is above the level 23 metres, and when the 120 is extended far enough in advance of the same we purpose to make the communication from the 120; this, when effected, will give good ventilation in this part of the mine, as well as open up a good piece of available ore ground. To stope the back of the 140 metre level, north of rise, by six men, at 30 marks per metre; the lode is worth 10/. per fathom for copper ore. The 120 metre level to drive south of shaft, by six men, at 55 marks per metre; the lode in this end is improving in appearance and character; yielding some good copper ore, and pro- mising a still further improvement. This level to drive south of No. 1 rise, on the footwall of the lode, by four men, at 55 marks per metre; the lode has a good ap- pearance, and is worth for copper ore 10/. per fathom. We purpose to extend this end about 10 metres further south in order to communicate with the cross- cut driven through the lode east, and then to stope the back of the same the south of rise, in which we had a good lode of copper ore for all the distance risen. To rise in back of ditto, by six men, at 70 marks per metre; the lode at this point has become harder for progress, it being mixed with more spar; worth for copper ore 1/. per fathom. To stope the back of this level north of shaft, by six men, at 90 marks per metre; lode worth for copper and blende 10/. per fm. In this stope we have recently met with a slide which for the present has disordered the lode; this appears to be temporary, and when out of its influence we have reason to expect it will resume its former value. To stope the back of the 90 metre level south of rise, by six men, at 16 marks per metre; the lode is worth for copper 20/. per fm. To stope the back of ditto, north of the rise, by six men, at 15 marks per metre; the lode is worth 10/. per fathom. We have set to work the new jigging machine, which is working excellently. We are making good progress with the excavations for the new dressing works, and by the end of this week we hope to have suffi- cient taken out so as to begin to build the foundations of the crusher and engine houses. The dressing is being pushed on with energy, and we are making excel- lent progress in preparing another parcel of copper ore for the market.

A NEW EXPLOSIVE.—It was stated at the last meeting of the Royal Dublin Society that a new explosive agent has been discovered by Prof. Emerson Reynolds in the Laboratory of Trinity College, Dublin. It is a mixture of 75 per cent. of chlorate of potassium with 25 per cent. of a body called sulphurea. It is a white powder, which is very easily prepared by the mixture of the materials in the above-named proportions. The new powder can be ignited at a rather lower temperature than ordinary gunpowder, while the effects it produces are even more remarkable than those caused by the usual mixture. Dr. Reynolds states that his powder leaves only 45 per cent. of solid residue, whereas common gunpowder leaves about 57 per cent. It has been used with success in small cannon, but its discoverer considered that its chief use would be for blasting, for shells, for torpedoes, and for similar purposes. Dr. Reynolds pointed out that one of the advantages this powder pos- sesses is that it can be produced at a moment's notice by a comparatively rough mixture of the materials, which can be stored and carried without risk so long as they are separate. The sulphures, the chief component of the new explosive, was discovered by Dr. Reynolds about 10 years ago, and could be easily procured in large quantities from a product of gas manufacture which is at present wasted.—*Nature.*

ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY.

TIRITO.—Capt. Clemo, July 15: The stope in the first lode above the tunnel level south of the engine-room continues the same as when last mentioned. Our prospecting cross-cut south-east from south slide at the tunnel level is now sus- pended; we are now driving east on the south wall of the slide to communicate with the old south tunnel end, which we expect to reach in about 45 ft.; the ground is good for driving. We are now driving at the rate of 9 ft. per week; On communicating this point we have some old ground that will pay to work, and we can then cross-cut south-east again from the old south level, and prove the lode that we have already cut with our cross-cuts. I think on communicat- ing with this place we shall get good ventilation from the old works, which will be greatly needed when the hot weather comes. The works at the back in the drive west from the above cross-cut continue to turn out a little ore, but they have no great change from last week.

PROVIDENCIA.—In the underhand stope nothing has been done this week, as it interferes with the driving of the 10 end; when the end gets a little further in we shall start it again. The stope in the back of this place has improved in the past week. The end in the 10 north continues to improve fairly.

MINA GRANDE.—The west branch continues to look well; we have now com- menced to rise to connect with the 7 fm. level above. The drive north from the west cross cut, 7 fms. above the tunnel level, now shows some good stones of black ore. The winze sinking in the 12 is now down 43 ft., and has got into such poor ground that we have suspended it for awhile; we are now driving north from the end of the winze about 20 ft. from the bottom, where we have a good lode of ore.

TIRITO.—Feb. 22: The stope in the first lode above the tunnel level, south of the engine-room, has no change to notice. Our drive east, on south wall of south slide progresses rapidly. The works in the back in the drive west from our south-east prospecting cross-cut have no change from last week.

PROVIDENCIA.—The underhand stope has now been resumed. The stope con- tinues the same as for some time past. The stope in the back in this place appears to be slowly improving. The driving of the 10 north has been suspended, as we have now concluded to work the underhand stope (below the tunnel level) down to the 10 before driving the end.—The Virgen: At the tunnel level we have now begun to drive north and south from a cross-cut we have on this lode, about 60 ft. north of the north end of our old Virgen black ore stopes. The lode in these two ends is turning out a little very good black ore, and at present looks very pro- mising.

MINA GRANDE.—The rise in the west branch is being carried about 8 ft. square, and is nearly all solid ore, but very hard, hot, and costly for rising. The drive north from the west cross cut at the 7, above the tunnel level, is very hard, and has very little ore. We have now stopped it. We are now going to prove it by the rise coming up from the tunnel level. The drive north from the end of the winze in the 12 is carried 5 ft. wide, and is nearly all ore, and some orey ground still standing on the western side.

TIRITO.—March 1: The stope in the first lode above the tunnel level, south of the engine-room, continues without change. Our drive east on south wall of south slide continues to make good progress. The works in the back in the drive west, from our south-east prospecting cross-cut, are now suspended, as the branch we were working does not look near as well as it did.

PROVIDENCIA.—The underhand stope has no change to notice. The stope in the back in this place continues to improve in quantity and quality. The end driving north in the Virgen at the tunnel level is looking well, and has about 3 ft. of very good quality black ore. The end driving south has a very promising appearance, and is producing a fair quantity of good ore. We have now commenced a rise in this place to prepare for stopes. The rise is also turning out fairly.

MINA GRANDE.—The rise in the west branch is not looking as well as it did, having now got into a ball of felspar. The drive north from the end of winze in the 12 fm. level is not producing as well as it did, the lode containing more quartz than formerly.

Frank W. Breach, Feb. 15.—I beg to enclose sketch of the explorations south of the slide in the Tirito Mine, in order that you may be enabled to form a more correct idea than I could impart by a description of the position of the various workings and the direction of the walls in this part of the mine. (Mr. Breach then describes the several points on the sketch. The description would be unintelligible without giving a copy of the sketch. The London manager would be happy to explain the same to any parties interested.)

February 22.—You will note by Capt. Clemo's letter that we have stopped sink- ing the winze in the 12 fm. level, in the Mina Grande. The bottom is in poor, hard, and very expensive ground, quartz, and felspar, and we are now driving north in tolerably solid ore, in the hope of getting into payable ground that may continue to the 24. In the new west branch the rise over the tunnel level is in good solid ore; and, although within 17 ft. of the 7 fm. level over the tunnel, we have but little ore in the level, now stopped. The Virgen branch, north of our old workings, we have cut into from an old cross-cut from the tunnel, and the hanging-wall continues. The ore we have in the ends driving north and south is payable, and appears to improve as though it might make another bunch. If it should do so we shall select the best for export, while the remainder will be a great assistance in the furnace, where its better ley and comparative freedom from lead will help to increase the returns. South of the slide we are driving east on the south wall of the slide, at from 9 to 10 ft. per week, and at this rate we shall soon hole to the old south workings.

March 1: Sketch of new workings in Providencia, I beg to enclose, and have included the new discovery made of La Virgen branch, continuing to the north in the hitherto supposed dead ground in the Providencia Mine. In this branch we have now driven 25 ft., and the ore improves towards the north, being a first- class solid coppery black ore, which is set apart for export. I have no assay yet, but as there is very little lead or zinc, and a fair quantity of petanque, I ex- pect an export sample of from $200 to $300 per ton. We are pushing the work of opening out for stoping to the utmost. The north and south ends of the level are let for driving, and also a rise for stoping. In the extreme north end of the 10 we have cut into the east a little, and obtained good indications of the existence of black ore, and I hope in going underground to-morrow to find sufficient to warrant the letting a cross-cut east. Altogether this place looks very promising, and if it continues as at present we shall soon be enabled to give the Providencia (schooner) employment in export ore freights. It is quite possible from the situa- tion and direction of the Virgen branch that it may prove to be the Great Eastern branch, marked in the plan as worked by the old miners, and as such is the main course of ore in the lode. This is the more probable, when it is considered that it is the only course of ore yet found that carries a good strong hanging-wall, and against which on contact all other walls yet seen terminate. You will re- member some time back I enclosed a transverse sectional sketch of the Virgen wall down to the 42 in the Tirito with reference to the south slide. By observing the walls shown I think you will notice the wall of the Virgen holding down, while ether walls cut out against it.

PROVIDENCIA.—I think the notes on the sketch will explain the two branches of ore being worked above and below the tunnel level. At the south end they unite, and separate as they go north. The general character of the ground is very dredgy, but the ore contained is of a high class, and pays well for working. As the ore is not continuous in either of the branches, which have nothing like a wall, the sides being composed of spar, now and then mixed with country rock, I cannot have any faith in their continuance. All that can be said is that while the ore lasts it is a very great help to the month's produce, but it may give out at any moment. Under the 10 the ore may continue, but its nature will not warrant any expenditure in cross-cutting for it at the 20; the cheapest way will be to follow it down. Telegram I yesterday forwarded to Messrs. Cross and Co. for transmis- sion:—(Translation) "Virgen discovered north in east cross-cut from tunnel; width of Virgen (Providencia), 1 fathom; ley of ores high; coppery, black; looking well; raining." Referring to the last word, I am glad to be able to re- port that on Sunday night last we had a heavy fall of rain, accompanied by a hur- ricane lasting some hours, but which passed over without doing any damage here.

TIRITO: SOUTH OF SLIDE.—The exploration cross cut progresses rapidly towards our old south works for the purpose explained in my letter of Feb. 15. I think this week the end will have advanced 18 ft. at least. From the ground being so re- markably easy, and other indications, we begin to hope that the main ore course is not very far from the south end of the old works.

MINA GRANDE.—The working below the 12 is far from satisfactory, being an equal mixture of black ore, quartz, and felspar, all of the hardest kind, and very expensive to work. The whole, below tunnel level, appears to be one great disloc- cation. We sunk the winze into quartz and felspar, and now have driven from it to the north, and again the ore is running out. From the extreme hardness of the ground, anything like cross-cutting, even if we had any indications to guide us, would be a heavy expense. At this point we are almost at our wit's end to know what to do for the best; fortunately, the west branch below the tunnel level is very solid, and meets our present requirements for the furnace.

On March 26 the directors received the following telegram from the mines (translation):—The lode in the Virgen (Providencia) continues to make upwards, and in east cross cut 10 fm. level north ley of ores for export 100 ozs. per ton.

REGULATING VALVE FOR STEAM.—Within a hollow casing or stand Mr. W. REID, of Liverpool, fits or applies a spring, by pre- ference a steel spiral spring, which is connected to or with a slide valve, by which the requisite change in the position of the valve and openings may be readily effected. The upper portion of the hollow chamber or stand is separated from the lower by means of an elastic diaphragm placed between the flanches thereof. A piston works in each portion, and both are mounted on the superior end of the common spindle or rod, whilst at the lower part or portion thereof is carried or attached the slide valve, working upon a metal seating, with suitable passage ways by which the steam, water, or other fluid pressure is under regulation, permitted to pass from the inlet to the outlet side, acting on the under side of the vertically moving piston.

SUBSTITUTE FOR SLATE.—The new composition proposed by Mr. J. A. DITCH, of Hastings, consists in mixing the various materials, or their chemical equivalents, in the proportions or near thereto, as hereinafter mentioned, for the purpose of providing, when applied as a coating to any convenient and suitable substance, a substitute for slate for building, writing, and other purposes. The mixtures and proportions for coating substances for exterior work are—One quart of methylated spirit or its equivalent, ¼ lb. gum shellac, ¼ lb. flour of emery. For coating substances to serve as writing slates, add powdered glass, rotten stone, or pumice stone, together with lamp black or Paris green sufficient to give the desired shade of colour. Other powdered substances, such as chalk, brick, slate, or stone, may be used for the purpose of giving a body or abrading surface to the composition. A convenient way of making writing slates is to coat millboard with the new composition, frame the board, and mount it on an easel so arranged that it can be closed and shut up when not in use.

TREATING MIXED ORES.

The difficulty of rendering ores containing various metals in com- bination commercially valuable has long been known, but it is be- lieved that Mr. F. M. LYTE, of Paris, has now devised a remedy. His invention relates to improvements in treating ores containing silver, and certain of its compounds, copper and certain of its com- pounds, lead and certain of its compounds, either severally or com- bined, and reducing and extracting expeditiously each or any of these metals therefrom, and separating them. The ore is first pul- verised and calcined, if requisite, to expel any large proportions of sulphur or arsenic it may contain. It is then to be thoroughly wetted with sulphuric acid; the sulphuric acid should be in such quantity as to ensure the saturation of all the metals and earthy bases present, and leave some small excess of acid. The mixture is then to be heated in an oven, stove, or hot chamber until all the silver and other metals intended to be extracted have become con- verted into sulphates. The operation will generally be found to be complete when the heavy white fumes of sulphuric acid which are at first disengaged begin to diminish.

Acid sulphates, such as the acid sulphates of soda or of potash, may be employed in place of sulphuric acid as above, but usually these present no advantages over the latter. At the end of this operation, which I will call "sulphatation," the material will gener- ally be found to have become more or less caked together. If neces- sary it should be crushed or broken up. If it should be found that the sulphatation has not completely attacked the minerals, it will be found advantageous to place the crushed material in a vat, and treat it with muriatic acid in sufficient quantity to completely chloridise the metallic bases contained in the material, and to leave a fair excess of acid.

In ordinary cases the material when prepared in the manner men- tioned by sulphatation will be found to be completely converted into sulphates, and it is then treated directly with brine acidulated with muriatic acid. Mr. Lyte has found that, contrary to the hitherto general belief of chemists, hot accidulated brine is a most powerful solvent for salts of lead, even for sulphate of lead. In the separation of copper from lead he proceeds thus: If sulphate or chloride of lead be treated with strong brine, or if the brine be acidulated with hydrochloric acid, the sulphate or chloride of lead dissolves abundantly, especially with the aid of heat; but if the same sulphate or chloride of lead be treated with an excess of sulphuric acid, to which has been added just a little (say) only 10 per cent., more or less, of saturated brine, as compared to the quan- tity of sulphuric acid employed or if an alkaline sulphate be added to the solution in such proportion that there may be about ten of sulphuric acid to one of chlorine in the solution, the lead will be found to be nearly if not quite insoluble therein.

Now, such a solution as the one last mentioned, if sufficiently acid, dissolves copper abundantly. This then furnishes us with the means of treating mixed ores containing lead and copper by what he terms a differential separating process. After being pulverised and calcined they are first treated with a solution of sulphuric acid, to which may be added, if silver be present, a little chloride of sodium. The acid present should be in such proportion as to dis- solve the copper and combine with the lead. The cupreous solu- tion is drawn off and the copper recovered in the ordinary way. The remaining insoluble matter containing lead and silver is then treated with brine, acidulated with a relatively small proportion of sulphuric acid, or still better with brine, acidulated with muriatic acid—say, only 1 or 2 per cent. of strong acid. The whole of the lead may be thus taken up.

A similar result might be obtained, attended with a more com- plete solution of the copper, by treating the ore (whether previously sulphatised or simply calcined) with sulphuric acid, and leaving the mixture exposed to the air at ordinary temperatures, when the copper all becomes converted into sulphate, and can be washed out, while lead and silver, if present, may be dissolved out of the residue by treating it with acidulated brine. From these solutions the copper, on the one hand, may be thrown down by metallic iron or zinc, and the lead and silver dissolved in the brine may be re- covered by means of zinc, in accordance with one of Mr. Lyte's previous processes.

In order to keep all the silver in the precipitate with the lead in this case it is well to add a little brine to the sulphuric acid when poured over the ore, as above stated. From each of these solutions the lead and copper may respectively be precipitated by zinc, as above mentioned. There is no necessity for strictly adhering to these proportions of brine to acid—a certain latitude is allowable —nor is it absolutely necessary that brine (solution of chloride of sodium) should be used. Other alkaline and metallic chlorides have great solvent power for lead when acidulated, the solvent power being diminished, or wholly taken away, in proportion as more or less sulphuric acid is present in excess. Chloride of silver, unlike lead, is on the contrary soluble in both acid and neutral brine. Mr. Lyte believes this is the first time that these reactions with lead salts and acid chlorides have been observed, or even that the relative insolubity of chloride of lead in neutral brine, as compared with its great solubility in acidulated brine, has been mentioned. Freshly precipitated chloride or sulphate of lead are, however, suffi- ciently soluble in hot neutral non-acidulated brine for brine alone to be used. He has only to add that the solvent powers of the acid brine are greatly increased by heating, so he performs all this treat- ment, by preference, in tubs heated by steam.

In case of treating an ore containing silver and no lead it may be found convenient to add some lead, sulphate, or chloride, or a soluble lead salt, before adding the acid brine to the sulphatised ore. The silver then precipitates with the lead when the metallic zinc is introduced. When treating ores by this method much sul- phuric acid is liable to accumulate in the chloride of zinc and sodium solution which remains; and if the zinc is to be extracted as rough zinc oxide by precipitation with lime, the former will be found contaminated with calcium sulphate. Such a mixture cannot be conveniently distilled by the ordinary processes for the recovery of the zinc as metallic zinc; he finds it advantageous to first pre- cipitate the sulphuric acid as calcium sulphate by adding some of the calcium chloride residue of a former operation, and then after draw- ing off the clear solution of zinc chloride he proceeds to precipitate from it hot the rough zinc oxide. The brine may be used over and over again, only being freshly acidulated when requisite until it becomes so charged with zinc chloride that it may be thought ad- visable to extract the zinc. This treatment with acidulated brine is applicable to the treatment of lead sulphate and lead chloride re- sidues from dye works, lead ashes, &c. After the above treatment, if an ore contained any gold the gold will be found in the gangue or matrix remaining after the process. It may be extracted by any well-known process, the silicious matter composing the residue being peculiarly well prepared by the improved mode of treatment by means of acidulated brine.

EXPLOSIVE COMPOUNDS.—The object of the invention of Dr. JOHN STENHOUSE, of Aix-la-Chapelle, is to improve explosive co mpounds by combining nitroglycerine with other materials by spe- cial methods, and consists in employing carbonate of ammonia in the said manufacture; and in carrying it out, according to one modification, from one to three parts by weight of carbonate of ammonia, which may be the ordinary commercial carbonate, are taken for every hundred parts of the nitroglycerine employed, and are mixed with the kieselguhr or other ingredients, preferentially prior to the combination of the nitroglycerine therewith. The proportion of carbonate of ammonia may be varied in different cases, and it may be mixed with the kieselguhr or other ingredients in any convenient way. The mixture may be made sufficiently in- timate by mixing the ingredients in a finely-powdered state by hand, or by rubbing or passing them through a sieve.

The

CAMBRIAN

MINING COMPANY,

LIMITED,

Sold at

Swansea, April 9th,

116 Tons of

Copper Ore,

Which realized

£1,113 5s.

Average price,

£9 11s. 11d. per ton.

Hodgkinson & Co.,

9, Great Winchester St.,

London, E.C.,

Can now

Supply

Cambrian Shares

At £3 per Share.

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, April 17: We have now driven at the 15 fm. level 2 fms. east on the course of the lode; I cannot say how wide the lode is, but we are carrying about 3 ft. of it with us as we are driving. The lode is producing blende, sulphur, and a little lead, but not sufficient to value as yet.

BETTWS-Y-COED.—H. T. Haley, April 15: The lode in the shaft is daily improving; worth for lead 35 cwts., and looking first-rate. The 20 south branch is worth for lead 15 cwts., with very congenial ground for the production of ore, so that we may expect this end to increase in value. No change in the other places.

BLAEN CAELAN UNITED.—J. Pell, April 18: All is going on well, the lead in the winze is worth 50*l.* per fathom. Shaft sinking. Other work progressing.

BODIDRIS.—H. Hotchkiss, April 17: Setting report for the ensuing month:—The 60 cross-cut to drive south, by four men, at 110s. per fathom for 1 fm.; the ground in the present forebreast has become more settled. The measures are of the best bearing kind, with a good quantity of spar. The 45 to drive east on the middle lode, by two men, at 170s. per fathom for the month. A cross cut to drive north by four men, at 220s. per fathom; there is no change in either of these places calling for special remarks. I have a set of men stoping down ore in this level. In opening out the old shaft on surface we have had great difficulty in ascertaining the exact spot where this shaft has gone down, as the former workers have taken away the lode both east and west, evidently for the purpose of taking out the ore; we are down 2½ fms. I have four men here not set to yet; shall do so in a few days.

CAMBRIAN MINES.—T. Glanville, April 16: ESGAIR FRAITH: We are sinking the eastern shaft below the 23 in the lime formation, which is producing about 2 tons of copper ore per fathom, and some good stones of lead. In the eastern end the lode is composed of gossan and lead, worth 1 ton of lead ore per fathom. The lode in the western end is between 3 and 4 feet wide, composed of mundic intermixed with lead, and showing every sign of improving.

ESGAIR-HIR: We are still driving the adit level west on the lode, which is producing some good stones of lead.

CARGOLL.—J. Jennings, April 17: Bowyer's shaft is sunk to the 44, and have commenced the cross-cut south at this level. I shall hasten on this drivage with all speed in order to intersect the south lodes in the time specified—June next. The caunter lode, which has been the most productive one in the levels above, will be reached probably in about four weeks from this time, and as there is a good branch of lead gone down in the 34, just above the present cross cut, I have every reason to believe that better results will be realised when intersected and opened on at this level. The 34 east, on the caunter lode, is looking very promising again; although the lead here had fallen off a little in the last few days, I am pleased to state that it is now producing very rich stone and branches of lead ore, and which is best towards the bottom of the level; this is also a very encouraging feature for the 44. The main lode in the adit level west is looking much more favourable than for some time past; it is highly mineralised with mundic, congenial quartz, and flookan. Nothing new to report on elsewhere.

CARON LEAD.—J. Kitto, April 15: I have nothing particularly new to report to you, but am pleased to say the ore still continues in the 10, driving west from the old engine-shaft, and that in the same level, east of shaft, the lode has further improved since the date of my last report. We are making very good progress with the new engine-shaft, and shall have it ready and pumps fixed by the time the new machinery is set to work. The masons are getting on very well with the building of wheel-pit, &c., and, on the whole, the weather is favourable. Nearly the whole of the machinery has been sent off, and the greater part of it is already on the mine, and we shall commence with the fixing of the same as soon as ever the masons have sufficiently far advanced with the buildings, all of which are being pushed on as rapidly as possible, and we have already commenced to wash and prepare the leadstuff for the crushing-mill.

CENTRAL VAN.—J. Roach, April 17: I got the engine to work on March 25, since which date the water has been drained, and shaft deepened 4½ ft. Sinking will be resumed in full force when the cistern, &c., is fixed. All the water is still rising from bottom of the shaft, which is a good indication for the discovery of lead as depth is attained.

CLEMENTINA.—John Roberts, Wm. Bennetts, April 17: The water is still in the bottom of the mine, but the weather has now changed, and we hope shortly to have the water out again. In the meantime, we have the men stoping in the back of the adit level, as we advised you last week; the lode is worth 1 ton of lead to the fathom. We have raised 1 foot on the embankment of the reservoir, which will increase nearly quarter part the bulk of water when filled again.

COMBMARTIN.—T. Comer, April 17: In the 28, west of cross-cut, from Harris's shaft, driving north-west of cross course, we have cut through about 2 ft. of the lode, which contains a beautiful capel, quartz, and mundic, with a little silver-lead and blende. We expect to reach the north wall of the lode in a few days. In the 15, east of Harris's shaft, the lode is about 4 ft. wide, containing veins of good looking quartz and mundic, with good seams of silver-lead embedded in a nice-looking killas for the production of mineral. We look out here for an early improvement. In the adit cross-cut, driving north, the present end is in a good channel of killas, intermixed with small veins of quartz, muudic, and spots of lead.

DE BROKE.—J. Phillips, April 17: In Wilson's shaft sinking below the 45 the lode is composed principally of quartz and killas, with branches of lead, copper, and blende; the ground is rather more favourable; depth of shaft below the 45 19 ft. The 45 east is still hard, with no change in produce. The lode in the 45 west is 4 ft. wide, with good stones of ore in quartz on the north wall. The stope in the 35 east near the caunter is suspended until we effect a communication for air between two points further west. The stopes in the back of the 35 east are yielding about 25 cwts. of lead ore per fathom. The stope west of shaft is worked through to the 25, and the men will be applied elsewhere in a few days. The trial drift east of the 25 stope produces good ore at times, and has been driven 7 fms. through a lode of this character. Dressing and other surface work proceeding well.

D'ERESBY CONSOLS.—John Roberts, April 17: The points of operation here are without any change since our last, but we expect something good to report shortly.

D'ERESBY MOUNTAIN.—John Roberts, W. Bennetts, April 17: Setting Report: Stopes in No. 4 by six men, at 12*l.* per fathom. As we are getting nearer the surface, as might be expected, the lode is not so rich for lead as formerly, yet at the same time this rather confirms than otherwise the opinion expressed by us with regard to the No. 5 when cleared, because it proves increased riches in depth. No. 3 not let, the men having removed. The lode has opened out to a beautiful one in appearance, and cannot fail to make lead shortly.—No. 5: By the end of the week we hope to have got through a very difficult part of this, and we are glad to say that from the bottom of this level this week we have broken some fine stones of lead. There can be no doubt, although this is 200 fms. further north than the ore at No. 4, that we shall have here a splendid lode by sinking a shaft below.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, A. Francis, April 17: Good progress is being made in all our operations, and in the sump sinking below the 66 west we are raising splendid ore, and prospects are very good.

DUBBY SYKE.—W. Tallentire, April 12: Dubby Syke Level: East we have now risen in the vein to the top of the thrown-up side or cheek; it is producing nice balls of solid lead ore. Our main object in continuing the rise is for ventilation, so that the mine can be properly developed. We are up altogether from the main level 9 fms. 3 ft., and we have 3 fms. more to rise. Outside we have the bouse team nearly completed.

EAST VAN.—W. Williams, April 17: We are making good progress with the sinking of Tempest shaft. In driving the 55 east the lode is improving for lead. The 55 west is also driving upon a very kindly lode, intermixed throughout with lead, but not rich enough to value. These levels indicate further improvements.

EAST WHEAL LOVELL.—R. Quentrall, April 17: There is no improvement at Fatwork since my last report. The ground in the 80 cross-cut north is changing, and I think we are getting near the lode. In the 40 east of cross cut north there is granite in the bottom of the end, indicating a westerly dip, and we shall open a little in that direction. In the south part of the sett we have sunk a shaft on the south lode as deep as we could with manual labour. The lode looks very well for the depth. We are sinking a shaft as fast as possible by nine men on another lode, which is from 18 in. to 2 ft. wide, well-defined, and producing good stones of tin. We have removed the portable engine to this ground, and shall get it to work as quickly as possible, which will enable us to sink on both lodes and test this part of the sett.

GAWTON COPPER.—G. Rowe, G. Rowe, jun., April 13: The lode in the 82, west of cross-cut, is carried 6 ft. wide, producing very strong arsenical and sulphur mundic, spotted with copper ore. The lode in the 95 east is showing a very kindly appearance, worth 10*l.* per fathom. The lode in the winze sinking below the 105 east is carried 8 ft. wide, producing mundic and ore to the value of 30*l.* per fathom. The lode in the stopes at the same level is worth 25*l.* per fathom. All other points of operations are without change.

GLASGOW CARADON CONSOLS.—Wm. Taylor, W. J. Taylor, April 15: No change of importance in the sinking of Elliott's shaft; the men are getting on with the work there as fast as possible. In the 90 east the lode is not looking so well, rather disordered by a horse, which makes it troublesome for driving, now worth 12*l.* per fathom. This level west is worth from 12*l.* to 15*l.* per fathom, and easy for working. The ground in the 78 east is still hard; lode producing a little ore, but not to value. The winze in the bottom of this level, before the 90 east, is worth 12*l.* per fathom; this level west, on south lode, is looking very well, worth from 12*l.* to 14*l.* per fathom. In the midway east the lode has a good appearance, with stones of ore; we have been expecting this end to strike into a new shoot of ore. The stopes throughout the mine are looking well; their value fully equal to our last report. We are preparing to lay tram wood from the new shaft to the dressing-floors; this with all our surface work is being pushed on.

GLENROY.—R. Rowe, April 16: The men are still busy fixing the new plunger-lift, the rods are sent down, the bottom of the plunger is fixed, and the column commenced to be reared up. It will take from 10 days to a fortnight yet to complete the work. We shall ship the blende to morrow, which weighs close upon 30 tons.

GREAT HOLWAY.—April 17: We have completed alterations in the level engine-shaft, and shall now be able to make good progress in our various operations. Next week we shall be raising lead from Victoria shaft, on the freehold, from Partridge shaft, and from the level engine-shaft. We consider our prespects very satisfactory.

GREAT DYLIFFE.—E. Evans, April 17: Our stopes on Dyliffe lode, over the 132, east and west, are much the same as last week. The stopes over and under the 95 east are still holding good, and we have a good prospect of another stope in this level in a few weeks. The stripping at the 20 is looking this week very fair; we expect to have much ore from this place in future. At the new lode we are raising ore by six men, which we intend to dress separately about the end of the week, when you shall know its value. The rise at the 105, east of Bradford shaft, on Llechweddu lode, is holed through to the old stope above. This place being now ventilated we are commencing stoping with 12 men; we shall value this next week. We are doing all we can to have the water in fork down to the 125 that we may commence driving as soon as possible on the ore ground that we have at present in the 105.

GREAT WHEAL RODD.—Thomas F. Hocking, April 16: We have not as yet cut the lode in the deep adit level, in consequence of the ground having become harder and more spare for progress. The men having completed their last contract of drivage have been again set for 2 fathoms more, or cut the lode, at 35s. per fathom. We have now got to where the ground is quite settled into solid blue killas, both in the back and bottom of the end, and shall not require so much timber as has hitherto been used.

GORSEDD AND MERLLYN.—Wm. Edwards, April 17: We are now driving west on the new lode, and there is very good lead in sight; we have not yet intersected the lode from the two cross-cuts, but I think the delay may be accounted for, as in sinking a sump in the bottom of the level we find the lode taking a more perpendicular course than we expected. We purpose commencing to sink the shaft next week, and hope to carry it down quickly to the next level, when we expect great results: 50 tons of lead sold last week realised 11*l.* 18s. 6d. per ton.

GREEN HURTH.—W. Vipond, April 12: There is no change to notice in the working on new vein west of No. 1; it is still yielding about 6 cwts. of ore per fathom. The stope on the third branch west of No. 1 has continued to improve this week; this stope is now yielding 16 cwts. of ore per fathom. The stope on the east branch is getting into poorer ground; it is not yielding more than 8 cwts. of ore per fathom. We have another stope yet to bring on in this when we have finished the present one, when we shall again get into more productive ground. The stope below the water-way is yielding about 6 cwts. of ore per fathom. The driving north on No. 3 cross vein is harder this week; this is not yielding any ore. There is nothing new in the cross cut west from north end; we have commenced to clear up the road to this, so that the work can come out from it as the men get in. We are now getting into wider ground in the working below adit level; it is still yielding very well. We have got fairly to work again with the dressing, and shall finish the delivery of a wagon of ore to-morrow—7 tons 4 cwts.

GROGWINION.—John Kitto, April 15: The winze sinking below the deep adit level has been sunk 12½ fms. The lode in bottom of same is 2½ ft. wide, and very good. We have commenced a stope in roof of the adit level, immediately over this winze, which will prevent its further sinking for some little time, but we shall resume it again as soon as possible. In the cross-cut driving towards the No. 4 lode, a little to the east of the winze above referred to, we have made very good progress during the month, and I hope to intersect the lode in six weeks from this date. I have nothing specially new or important to refer to, but the mine still continues to open out in a satisfactory manner, and never looked better than at the present time. We have sold since my last to Messrs. Walker, Parker and Co., 150 tons of lead ore, at 10*l.* 16s. 6d. per ton.

GUNNISLAKE (Clitters).—Wm. Skewis, J. C. Seccombe, April 17: The shaftmen are making all the progress they can with sinking the engine-shaft, cutting top and trip plat below the 212; the lode looking promising, worth 12*l.* per fathom. The lode in the 200 east is worth 6*l.* per fathom. The lode in the 188 east is worth 7*l.* per fathom. The lode in this level west is poor for the time. The lode in the stope in back of the 188 is worth 6*l.* per fathom. In the cross-cut south at the 188 the ground continues good for driving; we are driving about 21 ft. per month. The lode in the 176 west is producing stones of copper ore—saving work. In the 164 west we have intersected a cross-course; the men are now driving south to intersect the lode west of cross-course. The rise in the back of this level is holed to the 152, and has given good ventilation to the ends. The stope in back of the 164 is worth 8*l.* per fathom. The lode in the 152 west is poor for the time. The lode in the rise in back of the 152 is worth 7*l.* per fathom. The lode in the stope in the back of the 152 is worth 14*l.* per fathom.—Tribute Department: We have got working 13 pitches, at tributes varying from 8s. to 12s. in 1*l.*

HARWOOD.—Wm. Tallentire, April 12: Herdship Level: We are progressing satisfactorily with driving north on No. 2; the vein is as before described, about 1 ft. 6 in. wide, of very kindly spar. The vein in the south end has produced this week 12 cwts. of lead ore per fathom, is 7 ft. wide, and looks better than it has ever done.

KIT HILL TUNNEL.—H. Bennett, April 17: No change to notice in the driving of the north end. The silver lode in the western end is without any change since last reported on. No alteration in the south end.

LADYWELL.—A. Waters, April 17: There is nothing new in the mine worthy of notice since my report last week. We shall sample 25 tons of lead ore to-morrow for sale next week.

LEADHILLS.—Arthur Waters, April 17: Brow Vein: The stope in the back of the 60, south of Glengonar shaft, by two men, at 30s. per fathom, and 10s. per ton; lode worth 20 cwts. of lead ore per fathom. The tribute pitch in the back of the 60, by two men, at 120s. per ton. The stope below the 48, north of shaft, by four men, at 45s. per fathom, and 20s. per ton; lode worth 15 cwts. per fathom. The tribute pitch in the bottom of the 30, north of shaft, by four men, at 120s. per ton; lode worth ½ ton per fathom. The 30 cross-cut east to cut the silver lode, by four men, at 170s. per fathom. We have about 3 fathoms more to drive to cut the lode. The 20 cross-cut, south of shaft, to go east to cut the above-named lode, by four men, at 150s. per fathom. We calculate to reach the lode in about 3 fathoms further driving. The rise above the 20, north of shaft, on the before-mentioned side lode, by four men, at 170s. per fathom, and 10s. per ton; the lode is yielding good stones of ore. About 5 fms. further rising will hole to Moffat's winze, which is 11 fathoms below Gripp's level. The 10 below Gripp's level to drive south of Moffat's winze, which is 11 fathoms below Gripp's level. The 10 below Gripp's level to drive south of Moffat's winze, by four men, at 120s. per fathom, and 5s. per ton; lode yielding good stones of ore. Gripp's adit, north of shaft, by four men, at 120s. per fathom, and 10s. per ton; lode of very kindly character, and yielding good stones of ore. The stope above this level north, by four men, at 60s. per fathom, and 10s. per ton; lode worth ¾ ton per fathom.—Main's Cross-Cut: Gripp's adit to drive west of cross-cut towards the side lodes, by four men, at 190s. per fathom.—George's Roust Vein: Gripp's adit north on the above vein, by two men, at 100s. per fathom, and 5s. per ton. This is looked upon as one of the best trials in the mine.—Brown's Vein: The 55, north of Jeffrey's shaft, by four men, at 160s. per fathom, and 10s. per ton; this is a strong lode, yielding good stones of ore. The stope in the back of this level north, by four men, at 15*l.* per fathom, and 10s. per ton; worth 1¼ ton per fathom. The 55, south of shaft, by four men, at 150s. per fathom, and 10s. per ton; lode yielding good stones of ore. It would seem that we are entering No. 2 run of ore here. No. 1 stope in the back of this level south, by four men, at 40s. per fathom, and 10s. per ton; lode worth 2 tons per fathom. No. 2 stope, by four men, at 35s. per fathom, and 10s. per ton; worth 4 tons per fathom. The winze below the 41 north going down in the front of the 55, by four men, at 140s. per fathom, and 5s. per ton; the lode is worth ½ ton per fathom. The 41 north, by four men, at 170s. per fathom, and 10s. per ton; this is a strong kindly lode. The tribute pitch in the back of the 30, by two men, at 110s. per fathom.—Carses Vein: The tribute pitch in the back of Gripp's level north on the above vein, by three men, at 120s. per ton.—Mill Vein: The tribute pitch in the back of Gripp's adit, south of Mars' shaft, by two men, at 110s. per ton; lode worth 2 tons per fathom.—Raik Vein: The stope in the back of the 10, north of No. 1 sump, by four men, at 10s. per fathom, and 7s. per ton; lode worth 8 tons per fathom. The stope in the back of the said level, south of No. 2 sump, by four men, at 7s. per ton; the lode is worth 8 tons per fathom. Gripp's adit, south of Reid's shaft, on Highwork vein, by four men, at 100s. per fathom, and 10s. per ton. We expect to hole into old workings here shortly. The tribute pitch in the back of Gripp's adit, south of incline, by three men, at 13*l.* per ton. Gripp's adit, north of Jeffrey's cross-cut, on Highwork vein, by four men, at 100s. per fathom, and 10s. per ton. To sink from the surface, north of Reid's shaft, on new discovery on Raik vein, by two men, at 15s. per fathom, and 5s. per ton; lode showing splendid gossan, and rich stones of ore.—Watson's Shaft: To cut plat and put in cistern, and make ready for sinking below present bottom, by nine men, for the sum of 19*l.*—Jeffrey's Vein: Gripp's adit to drive north-west, by four men, at 120s. per fathom, and 10s. per ton; the lode is yielding stones of ore. The drift above Gripp's adit to go west from Raik vein, by four men, at 80s. per fathom, and 20s. per ton; lode worth 20 cwts. per fathom. The stope in the back of this level, by four men, at 10s. per fathom, and 20s. per ton; lode worth 3 tons per fathom.—Glen-ea: The adit cross-cut south towards the said lode, by four men, at 62s. 6d. per fathom. We are preparing to increase the length of the flues and height of the stack at the smelting works.

LIVINGSTONE CONSOLS.—W. Vivian, April 17: In the 40 driving west from the north shaft the lode is 4 ft. wide, producing copper ore and tin. The lode is of a very promising character. We sold a parcel of tin last week. I consider this to be very encouraging for the short time we have been at work. We have a large quantity of ground that can be worked on tribute as soon as we can get a little better price for tin and copper. We are sufferidg from the low price of copper and tin as all other mines are in Cornwall at the present time.

MELLANEAR.—John Gilbert, April 17: The lode in the 40, west of the skip shaft, is 2½ ft. wide, and worth 1 ton of copper ore per fathom. The stope in the back of the 67, east and west of No. 1 rise, is worth 5 tons of ore per fathom. The stope in the back of this level, east of No. 3 rise, is worth 6 tons of ore per fathom. The stope in the bottom of this level, west of the cross-course, is still worth 7 tons of ore per fathom. There is no change to notice in the ground in Gundry's shaft, and we calculate that the shaftmen will sink 2 fms. again this month. The lode in the 90, west of Gundry's shaft, is 4 ft. wide, and worth 1 ton of ore per fathom. The lode in the 80, west of shaft, is 4 ft. wide, and worth 3 tons of ore per fathom. This end is still letting out a large quantity of water, and has completely drained all the levels above. The lode in the stope in the back of this level, east of the shaft, is worth 5 tons of ore per fathom. The lode in the 70, west of shaft, is 3 ft. wide, and worth 2 tons of ore per fathom, and the men are making much better progress in driving since the water has been cut down. The lode in the 60, west of shaft, is 3 ft. wide, and worth 2 tons of ore per fathom. A branch of spar has come in from the north side of the level and disordered the lode, but we think that it will soon wear out again, and the lode resume its former value. The lode in the winze in the bottom of this level is worth 4 tons of ore per fathom. The lode in the rise in the back of this level is worth 3 tons of ore per fathom. The lode in the 50, west of the shaft, is 4 ft. wide, and worth 2½ tons of ore per fathom, and looking promising to improve very soon. No. 1 rise in the back of this level, east of shaft, is worth 4 tons of ore per fathom, and No. 2 rise, west of shaft, is still worth 6 tons of ore per fathom. The skip-shaft is communicated to the 100, and we are now preparing to put down the skip road below the 90, and to cut a good plat at the 100, after which we shall begin to drive this level west of shaft with all possible speed. We sampled yesterday, computed, 540 tons of copper ore.

MELINDWR.—John Kitto, April 15: In the new shaft, for proving the south lodes, we have fixed the pumps and pumping gear, and are now making good progress in the sinking of the same. The water is rather heavy, but not so much, however, but what we can keep it easily, and I hope that we shall now be able to continue the sinking without further interruption, in which case we shall not be long in getting it down for a 25 fm. level, at which depth I propose cross-cutting the lodes. Our operations on the north lodes are confined to what will pay for working.

MORFA DU.—T. Mitchell, April 17: The sinking continues to go on very well. The shaft is now down 11½ fms. below the level, and by the end of the month we hope to be deep enough to complete this shaft, when we shall at once commence driving towards the bluestone deposits.

NORTH CORNWALL.—T. Doidge, April 12: The caunter lode continues to open up well; it is a very fine lode, fully 4 ft. wide, producing good stones of lead and mundic; when its depth is taken into account, which is the adit level, and only 7 fms. from surface, I consider it a splendid-looking lode, which will be no doubt very productive at a fair depth. Nothing new in the cross-cut which is being put out in search of the north part of the north and south lode.

NORTH LAXEY.—R. Rowe, April 16: I have no particular change to announce since last week's report. The lode in the 84 continues to yield saving stuff for the floors, and the 60 and 110 stopes are about as last reported, worth about 10 cwts. of lead per fathom each. I hope to sample 20 tons of lead on Thursday next. We set on Friday the following bargains: The 110 stope by eight men, at 4*l.* per fm. The 84 end south by four men, at 7*l.* 10s. per fathom. The 70 roof by four men, at 4*l.* per fathom. The 60 sole by ten men, at 3*l.* 15s. per fathom.

PARYS MOUNTAIN.—T. Mitchell, April 17: The ground in the 90 cross-cut south is still hard, consequently the progress in the driving is not so good as we could wish, but the men are working well, and doing their best. We are, however, hoping to get through this hard belt of ground shortly, when better progress will be made in advancing towards the ore-bearing deposits. The 90 west of this cross-cut continues to yield about 1 ton of copper ore and ½ ton of sulphur in a fathom

PENNANT.—April 17: The 133 east is opening out, and there is no doubt we have an open lode before us. In the 133 west the lode is well defined, and of great strength. I think we shall make a valuable discovery here soon. The stopes are yielding as for some time past, and the machinery is in good working order.

PLYNLIMMON.—John Garland, April 17: There is not any change to notice since my last in any of the underground bargains. The 36, east of Jones's winze, and west of Herbert's, are being pushed on as fast as possible. I hope to be in a position to start some new stopes some time next week. Drawing and dressing are being carried on with regularity, but we are very short handed in the latter department. The machinery throughout is in fair working order, with a good supply of water.

PRINCE OF WALES.—J. Andrews, April 17: There is no change in the deep or shallow adit ends driving west of Vigar's shaft since the general meeting held last Friday.

RED ROCK.—John Kitto, April 15: We have not yet effected a communication between the 60 and 73, as the air in both places—the winze below the 60, and the rise above the 73—has been very bad, and has greatly impeded our progress; we are daily expecting, however, to get a hole through, and immediately this is done perfect ventilation will be secured. In the 60 driving east the lode is looking very well, and particularly towards the bottom; this looks well for a deeper level, and as soon as the ventilation (referred to above) is secured in the 73 we shall commence driving this latter level with full force, so as to get underneath this run of ore ground with as little delay as possible. In the middle level driving between the 60 and 35 there is a strong lode with ore throughout, but not rich; this level is intended to come over the run of ore ground just referred to. The lode in the 60, driving west from the eastern shaft, has very much improved during the last few days, but we have not yet had time to see much of it. I hope, however, to be able to report more fully and favourably in my next. The stopes and tribute pitches are looking just as usual, and are yielding pretty well, and we shall sample another 40 tons of lead ore before the end of the current month.

ROMAN GRAVELS.—A. Waters, April 17: A new south shaft is down to the 10, and the men will commence cross-cutting to-morrow. The 95 south is into lode 7 ft. wide, and worth 2 tons of lead ore per fathom. The boring machine is doing very well in this end. Jack's winze below the 80 and before the said 95 fm. is down the required depth, and the lode worth 2 tons of lead ore per fathom. The 80 south of the shaft is worth 3 tons per fathom. Matthews's winze below the 65 south is holed to the 80, and a good section of ore ground opened for stopes. The 65 south of shaft is going forward on the footwall part of the Roman lode, which is worth 5 tons of lead ore per fathom. The vein altogether here is 15 ft. wide. The winze below the 40 south is holed to the 50, and the men are stoping north and south in a good lode. Other points yielding ore as for some time past. We shall sample to-morrow 180 tons of lead ore for sale next week.

SOUTH CWMYSTWITH.—J. Kitto, April 15: There has been no important change in any of the levels or cross-cuts since the date of my last report, but every point continues much the same as for some time past. The stopes in the various levels have yielded pretty well during the past month, and we have still a large quantity of good lead stuff lying underground ready to be brought to the dressing-floors as soon as it is required. The dressing of ores has been greatly interrupted by the frost and snow, but is now regularly progressing, and we have sold since my last report to Messrs. Walker, Parker, and Co. 40 tons of lead ore, at 10*l.* 15s. per ton.

SOUTH DE ERESBY MOUNTAIN.—Thos. Bennetts, April 17: The ground in the cross cut driving towards No. 2 lode is still looking well for the production of lead when the lode is intersected. The lode in the No. 2 level is looking much more promising than I have seen it for some time past.

SOUTH MOLTON CONSOLS.—J. Harris, T. May, April 17: The lode in the new shaft is 3 ft. wide—a promising lode, but we are not deep enough yet for settled ground. In costeaning we think we are upon our north and south lode, but we are not deep enough for the shelf yet, therefore we shall continue sinking the pit, and hope to say more about it in our next. Our adit level is deep enough in the open cut for striking away a level, which we purpose doing; the adit is making ground faster than we anticipated, consequently we shall be making higher backs as we advance into the south ground than we expected.

SOUTH ROMAN GRAVELS.—April 17: Shelve Deep Adit: There is no change to note in the end driving north on No. 1 joint, which is set to two men, the month, at 6*l.* per fathom. There are now three strings or branches in No. 2 end driving north. The middle one is the largest and most regular; it varies from 3 to 6 in. in width, and contains occasional spots of ore; this end is set to two men, the month, at 6*l.* per fathom. I have also one man employed tramming stuff, &c.

ST. HARMON.—John Kitto, April 15: The lode in the cross cut at the 67, west of the engine-shaft, is fully 12 ft. wide, and spotted with ore throughout, and looks exceedingly kindly. We shall commence driving west on its course as soon as we are fairly through the south side. The lode in the same level east, I am glad to say, is improving, and contains a small branch of solid ore, which still makes me more sanguine as to future results; and should we strike into a bunch of ore here it will undoubtedly be a large and important one, as the lode at this point is of immense width. In the 35 west we are cross cutting the lode, but have not yet got into the main part; the branch that we have already passed through contains some lead ore. There is no change in the same level east. The stopes in back of this level are just as they have been for some time past. The ground in the 48 cross-cut is changing in its character, and the water is bursting out from all sides. I think there can be no doubt that we have now got close to one of the south lodes. The dressing of ore is progressing favourably, and we shall send out samples for the first sale of 20 tons before the end of the current week.

ST. PATRICK.—Wm. Francis, April 17: Every feature in driving the 120 yard north cross-cut continues most satisfactory and encouraging in the highest degree; the firm heading wall, with the cross course loose, composed of boulders of limestone and tufty embedded in clay, gossan, and other congenial compounds. The 60 yard cross-cut in the chert is making good progress. I noticed a little change in the beds, the chert of which is more broken up, and of the finest bearing kind. It is approaching the St. George's range of workings, and appears precisely the same kind of bearing ground that proved so rich there in former times.

TANKERVILLE.—A. Waters, April 17: Watson's shaft below the 192 is down 10 fms. 4 ft. 6 in., and the ground is still of a congenial character. The 192 west is in a lode 4 ft. wide, and worth 2½ tons of lead ore per fathom. The 192 east is yielding good stones of lead ore. The winze below the 192 east of shaft is down 5 fms. 5 ft.; the lode is 6 ft. wide, and worth 2½ tons of lead ore per fm. The new winze below the 192 west of shaft is worth 1¼ ton of lead ore per fathom. The stopes throughout the mine are yielding ore as for some time past. To-morrow we shall sample 100 tons of lead ore for sale next week.

TEMPLE.—April 16: No. 3 level produces lead to the extent of 15 cwts. per fm. No. 2 fully 1 ton per fathom. No. 3 produces a little blende and spots of copper an improvement is expected here very shortly.

TOLGUS CONSOLS.—W. C. Vivian, April 17: In the cross-cut north from the engine-shaft there is nothing new since my last, the rock continuing moderately favourable for progress. I have not yet placed men to open westward from the cross-cut on the copper ore veins recently intersected, as the end has not been sufficiently out of the way; but we shall begin the trial this afternoon. I have to-day broken large stones of rich yellow copper ore from the last vein intersected. In the 40 west of cross-cut, on the south lode, the appearances are better than they have ever before been. The middle branch of the lode is getting larger, and there was broken from it to-day a large and good-looking stone consisting of strong yellow copper ore, but intermixed with rich blende and quartz. There is a vugh in the middle of the end, from which a considerable stream of water is issuing. These improved appearances both north and south afford me much satisfaction and encouragement.

TREBEIGH CONSOLS.—J. Gifford, April 16: The 45 east is driven 30 fathoms from shaft; the lode in the present end is 2½ ft. wide, composed chiefly of killas, with a little quartz intermixed, and a small flookan on the footwall. The 45, south of engine-shaft, is driven 12 fms. on the branch or lode, as referred to before, which has produced good stones both of blende and lead ores, but not in paying quantities; in the present end it is 4 in. wide, principally quartz. About 8 ft. behind the end we drove through one of the branches that cross the shaft at the 30; where seen it is small, and produces a little blende and lead ore. The 45 west is driven 25 fms. from shaft; this end is suspended.—Ruby Lode: The grass shaft is driven 5 fms.; the lode in the bottom is increasing in size, being now 3 ft. wide, composed of capel, quartz, and gossan, intermixed with mundic, blende, and lead ore in small portions.

VAUGHAN.—April 17: In the deep adit level east the lode is becoming harder, and now promising. In the stope over the 30 east the lode is large, yielding 10 cwts. of lead ore per cubic fathom. In the stope over the 20 east the lode is large, yielding 12 cwts. of lead ore per cubic fathom. Our machinery is in good working order. Drawing and dressing progressing regularly.

WEST GODOLPHIN.—John Pope, April 17: The winze in the 60 west, on Wilson's lode, was communicated with the rise in the back of the 70 yesterday. The winzemen have commenced blasting down the sides of the 70, and the endmen have resumed driving the 70 west. There is no material change in the value of the lodes in the different pitches since my last report. I will send a full report in time for the committee meeting.

WEST GOGINAN.—John Kitto, April 15: We have cut another strong feed of water in our bottom level east of engine shaft, which has again drowned us out, and so far, we have not been enabled to get it under, or to ascertain the cause. I have no doubt, however, that it will soon drain itself, and I shall hope to find that we have touched upon a more productive lode. I will further advise you as soon as the water has been got out. The adit level is being driven through a very kindly lode, and occasionally we find good stones of lead ore, but so far not in paying quantities. It looks, however, very likely to further improve. I have nothing more to refer to elsewhere.

WEST TANKERVILLE.—A. Waters, April 17: The 86, south of boundary shaft, is in a lode 4 to 5 ft. wide, worth 1 ton of lead ore per fathom. The two stopes in this level, one north and one south of winze, are worth together 1¼ ton of lead ore per fathom. The 75 south is in a lode 3 ft. wide, worth ½ ton of lead ore per fathom. The three stopes in this level, one north and two south of winze, are worth together 2 tons per fathom. The two stopes in the bottom of the 63 south, one north and one south of winze, are worth together 2 tons per fathom. The stope and rise in the back of this level are worth together ¼ ton per fathom. We shall sample 35 tons of lead ore to-morrow, for sale next week.

WEST WHEAL TOLGUS.—April 17: Taylor's shaftmen have finished cutting the ground for the cistern, and are now putting it in its place. The lode in the 145 end west is opening wider—both walls are diverging, and the ground improving; it is better for driving, with more ore. Since my last report a patch of poor soft ground came across the end. Yesterday the ground began to change, and to-day it is looking better. We consider the end to be worth 3 tons of ore per fathom from the run of the south wall. I think we shall soon reach the south part of the lode, when we expect to see a great improvement. Nothing done in No. 2 winze since last week's report; the increase of water and great quantity of stuff to draw by tackle makes it too expensive to go on in that way any longer. The winzemen are put to stope west from No. 1 winze under the 135; we shall be able to report the value of the lode in our next. We have been putting in timber and securing the level, &c., so that there has been but little done in the lode yet. The lode in the 135 end west is from 4 to 5 ft. wide, very hard, with a little ore scattered all through it; there are eight men working in it, so we are doing all that can be done to hasten it on. There is good ore ground gone down before this end, with which we can do nothing until the water is let down by this end. The stopes in the back of the 135 continue good. The lode in the 125 is about 2 ft. wide, poor. We have not yet cut any lode in the 125 cross-cut south. The lode in the 115 fm. level west is without alteration; it is 3 ft. wide, all spar.—Richard's Shaft: There has been very little done in it since the accident to the boiler. There is no alteration in the ends at Richard's shaft. Our sampling is 300 tons of good ore.

WEST WYE VALLEY.—J. Kitto, April 15: We have made very good progress in the development of the mine since the date of my last report, but no important change has taken place since that time to call for any special remark. The driving of the various levels and cross-cuts are progressing satisfactorily, and the stopes throughout the mine are still yielding a full average quantity of ore, and all dresing operations are proceeding regularly. We have sold since my last to Messrs. Weston and Son 60 tons of lead ore, at 10*l.* 10s. 6d. per ton, and which is now in course of delivery.

WHEAL CREBOR.—J. Andrews, April 16: The lode in the 120 end east is 4 ft. wide, yielding a little copper ore, but not sufficient to value. The lode in No. 1 stope in the back of the 120 is 4 ft. wide, and worth 10*l.* per fathom. The lode in No. 2 stope in the back of the same level has improved during the past week, and is now 6 ft. wide, and worth fully 20*l.* per fathom. The lode in the 108 east continues to yield good stones of arsenical muudie, but is still poor for copper. There is no change in the 72 or 41 ends. The lode in the new shaft is 4 ft. wide, composed of quartz, capel, mundic, and stones of copper ore.

WHEAL GRENVILLE.—T. Hodge, April 16: Goold's shaft is in regular course of sinking below the 150, on the old lode, which is about 18 in. wide, producing some rich stones of tin. The 140 east end is poor: The lode in the 150, east of the western shaft, is worth 10*l.* per fathom; I think we have about 6 ft. more to drive to effect a communication. The 140 east end is worth 9*l.* per fathom. The 130 west end is worth 7*l.* per fathom. The stopes and tribute pitches are producing fair quantities of tin. The water is in the 160, and we have done but very little here during the past week. The masons are busy about the buildings for the calciner, portions of which have been delivered on the mine. All other surface work is being pushed forward with the utmost dispatch. We shall sell on Thursday next 17 tons of tin.

WHEAL NEWTON.—H. Bennett, April 17: The engine-shaft is progressing satisfactorily sinking below the 44. Good progress is being made in driving the 30 cross cut north, east of engine-shaft, towards the main part of the west lode. The adit end, west of the engine shaft, is improved; lode 20 in. wide, composed of carbonate of iron, sulphur-mundic, and, by assay made to day, 37 ozs. of fine silver to the ton of stuff. This speaks well for the ground between this point and the large cross-course. The stopes in the back of the 40, east of Cook's shaft, continue to yield good silver ore. The other points remain without any change to notice.

WHEAL KITTY (St. Agnes).—S. Davey, R. Harris, April 13: We have no change in either of the bargains worthy of special remark, except in the 142 west. At this point the loda has very much improved this week; it is now 4 ft. wide, and worth for tin 12*l.* per fathom. Judging from appearance there is reason to look forward for further improvement shortly.

WHEAL RUSSELL.—J. Bray, April 11: The lode in the 25 is from 2 to 3 ft. wide, with good stones of copper ore in the upper part of the level; this makes it very promising, as the ore for the last few fathoms was in the bottom. The lode in Maria's shaft is 5 ft. wide of a promising character; composed of rich looking gossan and quartz.

WHEAL UNY.—W. Rich, M. Rogers, April 13: The rise in the 60 west is worth 10*l.* per fathom. The 130 east is worth 12*l.* per fathom. The 140 east yields a little tin. The 150 end east is worth 6*l.* per fathom. A rise in the back of this level is worth 10*l.* per fathom. The 150 end west is worth 8*l.* per fathom; the back of this level is worth 25*l.* per fathom. The 160 east yields a little tin. The 160 west is worth 10*l.* per fathom. We have had to put in a new working barrel at Hind's, which has delayed the sinking of the shaft.

WYE VALLEY.—John Kitto, April 13: Since my last report the lode in the 46, east of the engine-shaft, has greatly improved in appearance, and is at present yielding more ore than it has before since we commenced driving it. In the adit level there is a run of orey ground only a few fathoms in advance of this level, so I am expecting a further improvement shortly. There is no change in the same level west. The 22 driving east is much the same as last reported, but the winze sinking below, and now down about 4 fms., is looking much better, and is yielding very good ore. We are, however, much troubled with water here, and consequently cannot make much progress in sinking, but we cannot tell how soon this may be drained by the driving of the 46 referred to above, and when accomplished, I scarcely need say, we shall be able to raise much more ore. The lode in Tippet's shaft, sinking below the adit level, is very hard and strong, and is spotted with ore throughout; in fact, it is altogether a kindly looking lode, but as we are only carrying a small portion of it in the sinking (about 5 ft. wide), we cannot tell what the other parts contain, as at this point it is altogether about 30 ft. in width. I am pleased to say that, on the whole, the mine looks more promising than it has for a long time past.

WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.,
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

CLEMENTINA.—The discovery of the lode in the adit going west, worth 1 ton of lead per fathom, is considered very important; it has 20 fms. of backs, which will increase as the level gets into the hill and towards the Gorse lode. No specific time was named for taking the new shares, but notice will probably be sent to those shareholders who have not taken up their proportions that they must be taken at once, or they may be allotted to other applicants. The mine is now in 5120 shares, of 1*l.* each.

SATURDAY, APRIL 13.—Market quiet, and prices for the most part nominal. Van, 22½ to 23½, ex div.; East Van, 6 to 6¼; D'Eresby Mountain, 85 to 100; D'Eresby Consols, 13 to 15; Roman Gravels, 8 to 8¼; Rookhope Lead, 17s. 6d. to 20s.; Leadhills, 3¾ to 4; Tankerville, 3⅞ to 4⅛; Great Laxey, 18 to 19; Carn Brea, 45 to 50; Dolcoath, 31 to 33; South Condurrow, 11 to 11⅛; Tincroft, 11 to 12; Agar, 4 to 4¼; Grenville, 3½ to 4; Peevor, 6 to 6¼, ex div.; West Chiverton, 13 to 14.

MONDAY, APRIL 15.—Market again quiet, and the following are quotations for the day. Tin shares: Carn Brea, 45 to 50; Dolcoath, 31 to 33; South Condurrow, 11 to 11⅛; Tincroft, 11 to 12; Agar, 4 to 4¼; Grenville, 3¼ to 4; Peevor, 6¼ to 6¾.—Lead Shares: D'Eresby Mountain, 85 to 100; D'Eresby Consols, 13 to 15; East Van, 6¼ to 6¾; Grogwinion, 3½ to 4; Great Laxey, 18 to 19; Leadhills, 3¾ to 4; North Laxey, 3s. to 5s.; Roman Gravels, 8 to 8¼ ex div.; Rookhope Lead, 18s. to 20s.; Tankerville, 4 to 4⅛; Van, 22½ to 23½; West Chiverton, 13 to 14; West Pateley Bridge, 2 to 2¼; Wye Valley, 1¼ to 2; West Wye Valley, 3¼ to 3¾.—Copper Shares: Devon Great Consols, 2½ to 3; Parys Mountain, 9s. to 11s.; Chontales, 9s. to 11s.; Eberhardt, 6 to 6½; Flagstaff, 10s. to 15s.; Frontino, 2 to 2¼; New Quebrada, 1¼ to 1¾; Richmond, 9½ to 9¾.

TUESDAY, APRIL 16.—Market continues inactive, and prices are almost the same as yesterday.

WEDNESDAY, APRIL 17.—Market very quiet, and price nominal. D'Eresby Mountain, 85 to 100; D'Eresby Consols, 12 to 14; Van, 21¼ to 22½; East Van, 6 to 6¼; West Chiverton, 13 to 14; Tankerville, 4 to 4⅛; Roman Gravels, 8 to 8⅛; Great Laxey, 18 to 19; Carn Brea, 45 to 47½; South Condurrow, 11 to 11⅛; Dolcoath, 31 to 33; Tincroft, 11 to 12; Wheal Agar, 4 to 4⅛; Grenville, 3¼ to 4; Peevor, 6 to 6½; Richmond, 9 to 9⅛; Eberhardt, 6 to 6½.

THURSDAY, APRIL 18.—Market again very quiet, and prices generally in favour of buyers. Van, 20 to 22; Great Laxey, 17½ to 18½; D'Eresby Mountain, 80 to 100; D'Eresby Consols, 12 to 14; West Chiverton, 12 to 13; Tankerville, 4 to 4½; Leadhills, 3¾ to 4; Roman Gravels, 8 to 8½; Carn Brea, 42½ to 45; Dolcoath, 30 to 32; Tincroft, 10¾ to 11½; South Condurrow, 11 to 11⅝, ex div. 8s; Agar, 3¾ to 4¼; Grenville, 3½ to 4; Peevor, 6¼ to 6½; Mellanear, 4¼ to 4¾.

GEOLOGICAL MAP OF THE MOONTA DISTRICT.—Mr. Samuel Higgs, late manager of the Wallaroo Mines, has shown us a very valuable and interesting plan which he has prepared for presentation to the Geological Society of Great Britain. The map depicts the surface of the Moonta District, embracing the boundaries of the Moonta, Hamley, Paramatta, Poona, Challa, Wheal James, Yelta, North Yelta, Euko, Wheal Hughes, together with several other minor mineral selections. The use of the plan is that it shows, not only the position of the shafts on the various properties, but also indicates the nature of the country underground, showing the lines of the different rocks met with—schistose, feltspathic, and others—and explains in which positions the most valuable mineral deposits are to be found. The cross-courses, slides, &c., are also clearly delineated. Altogether, the map cannot fail to be of great use to those interested in the study of metallurgy, and it will doubtless be appreciated by the learned society for whom it is intented. The suggestion has been made—and it is a good one—that the plan should first be sent by the Government to the Paris Exhibition, where it would give continental savants an opportunity of learning something about the geological formation of one of the richest ore producing districts in the world.—*Adelaide Evening Journal*, Feb. 15.

ECHOES FROM THE MINING MARKET.

Notwithstanding the quiet state of the lead market the demand for lead shares continues unabated. This confidence in the future of British lead mining is due to the firm belief entertained by investors that the present depression is merely a temporary one, and that with the causes of quietude removed lead will regain its old price. The peaceful settlement of the Eastern Question would at once cause a rebound in all the metal markets, and would, therefore, materially increase the business of the mining market.

Pre-eminent amongst the favoured lead districts now stands that which has lately been christened the "D'Eresby Mountain," the district taking its name, as most of our readers are aware, from the now famous mine of that name, the shares of which, following the course we have indicated for months past in these columns, have risen from about 20*l* each to within a few pounds of 100*l*. During a recent visit, in the course of which we personally inspected underground most of the mines comprising the district, we were able to bear witness to the well-defined and promising character of the lodes wrought upon in most of the mines already in work, and especially to the fine lode discovered at D'Eresby Mountain. We were also very pleased at the appearance of Pandora—a mine destined in all probability soon to take a prominent position in the mining market. The surface machinery is all that could be required, and far beyond what we saw at any other mine in the neighbourhood. We purpose again visiting this rising district within the next few days.

Van shares have been fluctuating of late. Within the past fortnight the quotation has been as high as 23¼ to 24½, and as low as 21 to 22. The latter quotation is the price of the moment; it is ex the dividend of 7s. 6d. per share. On the 23rd the Great Laxey Company will distribute 8s. per share. East Van are very firm at 6 to 6½.

The tin market has been rather more animated during the last ten days, and tin shares have been consequently in better demand. Carn Brea, setting the lead as usual, have risen nearly 4*l*. per share. South Condurrow are up about 15s. The latter mine has just announced a dividend of 8s. per share. South Condurrow continues to look extremely well. Dolcoath, Cook's Kitchen, and others, although not showing much quotable advance, are stronger in the market, and most of the lower priced shares from being offered without attracting buyers have become just as scarce as before they were plentiful.

Wheal Peevor last week entered the Dividend List with a distribution of 5s. per share. This is a very promising mine, and (we need scarcely add, for the results tell it so plainly) a well managed one. With a better price for tin the shares might easily see 10*l*. or 15*l*. per share.

Amongst colliery shares Chapel House have been in good demand, and close 3¼ to 3¾.

Foreign mine shares have been, comparatively speaking, neglected. Javali have been offered on the disappointing report lately issued by the management, and are not easily dealt in even at the quoted price of 4s. to 6s. Richmond are flatter, at 8¾ to 9, in consequence of the directors having announced that they have received information that the injunction to restrain the Eureka Company from working under the disputed ground has been refused by the District Court at Carson on the ground of want of jurisdiction. The directors further state that a similar application has now been made to the Supreme Court at Washington. Notice has also been served on the company in Nevada of a suit to account for the ore removed from Potts Chamber. The damages are laid at $2,500,000, but the company are in a position to prove that the market value of the ore removed was $20,000. New Quebrada continues to decline, fractionally it is true, but at the same time steadily. This is owing to the disappointment felt by the shareholders at the miserable prices the parcels of copper ore arriving here are realising. Cape Copper, 29 to 31; and Frontino, 1¾ to 2; Hultafall shares forming an exception to the general rule, have attracted a good deal of attention. JAMES H. CROFTS.

THE WEEK.

SATURDAY, APRIL 13.—Van shares were quoted ex the 7s. 6d. dividend, and were offered at lower prices. Buyers only offered 5 for Linares and 4 for Fortuna, this being in each case a fall of 5s. Pontgibaud shares could be had at 27, Eberhardts rose to 6, and Don Pedro were in demand at 11s. The persistent buying of Brighton, A, and Dover, A, has now nearly forced both stocks up to the prices touched before the collapse three weeks ago. The former closed at 126¾, and the other at 121½. Mexican Railway shares were dealt in at 1⅝, Lima at 6, and South Italian at 9. Telegraph shares were inactive. Anglo, 61 to 61¼. Brazilian, 6¾ to 6⅝. Cuba, 9½ to 9¾. Direct, 13¼ to 13⅝. Eastern, 7¼ to 7⅜. Globe, 4⅞ to 5. Construction, 27½ to 28. Panama, 2⅛ to 2¾.

MONDAY.—Nearly the whole of Saturday's rise in railways was lost, and the markets closed without recovery. Dover, A, and Brighton, A, each declined 1*l*. The fall in Chatham Preference was ⅝, the ordinary stock receding to 22*l*. There is a large "bull" account open in this last-named stock. Russian, of 1873, gave way 1¼, to 76¾. The advices from Egypt were very favourable, and a large sum of gold was received for the secured Turkish loans, but prices could not be kept up. Argentine was almost the only stock that could be called firm. The shares of the mercantile Bank of the River Plate met with considerable enquiry. A tendency was shown in the mining market to offer Vans and Roman Gravels. Rookhope, 17s. to 19s. Port Phillip, 10s. to 12s. Alamillos, 1¼ to 1¾. Gold Run, ¼ to ¾. Aberdaunant, ¼ to ¾. East Caradon, ⅜ to ½.

TUESDAY.—Van shares fell 1*l*., to 21½, 22½. West Wye Valley shares were offered at 3½, and those of Wye Valley at 1¾. Richmond shares offered at 9¼; the week's run is reported as one of 90,000*l*. Llanrwst, Pandora, and Tankerville were rather enquired for. Chapel House were in demand at 3*l*., but shares of the Newport Abercarn Colliery were offered at a considerable reduction, not being better than 3½. Until within about one hour of the closing the railway and foreign departments were even flatter than yesterday, but on it becoming known that some reassuring statements would be made before Parliament adjourned for the Easter holidays there was a sudden and marked recovery. A very few minutes sent up Russian, 1873, from 76½ to 77¾; while Dover, A, and Brighton, A, after being 1*l*. below yesterday, ultimately closed ¼ higher.

WEDNESDAY.—Richmond shares were dealt in to-day at 9¾; it appears that the District Court has refused to grant an injunction restraining the Eureka Company from working under the disputed ground. Notice has also been served on the company to account for the ore removed from Potts' Chamber, which is absurbly valued at $2,500,000. Eberhardt lost their recent improvement, and fell to 6. East Van declined to 6 and Van to 22. Tankerville, 4 to 4¼; Marke Valley, 10s. to 12s. 6d.; Chicago, 1 to 1⅛.

THURSDAY.—The report and accounts of the Great Western Railway Company of Canada show a net revenue surplus of 73,168*l*., against a deficit of 7775*l*. for 1877, which the report states is owing in part to the exceptional mildness of the late winter, and in part to care and economy in management, but mainly to the circumstance that freight rates were maintained at a profitable standard. The Committee of the Stock Exchange have granted a settling day for the 5000 new shares in Eley Brothers which were recently allotted as a bonus among the shareholders.

GOOD FRIDAY.—Stock Exchange closed. FERDINAND R. KIRK.

P.S.—I hope to have ready in a few days notes on some of the mines of the Llanrwst district made during a recent visit. F. R. K.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

LOSSIEMOUTH LEAD MINING COMPANY (Limited).—Capital 30,000*l*., in 5*l*. shares. To acquire and work the Stotfield Lead Mining Company (Limited), near Lossiemouth, Elgin, N.B. The subscribers are—James Hendrey, Crystal Palace Park, merchant, 50; John Hill, Bartholomew House, stockbroker, 50; H. P. Harris, 56, Mansell-street, merchant, 100; J. L. Shuter, Lawn House, Tufnell Park, merchant, 50; G. Tamplin, Fenchurch-street, solicitor, 50; A. H. Coventon, 21, Aberdeen Park, merchant, 100; G. D. Harris, 32, Inverness-terrace, Hyde Park. Mr. L. C. Hill, C.E., will be the manager.

LIVER CONSOLIDATED INVESTMENT COMPANY (Limited).—Capital 50,000*l*., in 10*l*. shares. To invest in leasehold property, &c., in Liverpool and Manchester. The subscribers (who take one share each) are—H. Fairbank, Albert-square, Manchester; A. Williams, Fairfield, Manchester; T. Ringsoph, Mount Pleasant, Liverpool; J. Williamson, reader, Walton-on-the-Hill; W. W. Hayes, Freshfields, Liverpool; T. Urmson, Liverpool; A. Smead, Manchester.

ATLAS ENGINE COMPANY (Limited).—Capital 50,000*l*., in 100*l*. shares. To take over the business of Messrs. Duvallon and Lloyd, of Birmingham, engineers, &c. The subscribers (who take one share each) are—A. Dixon, Letherhead; G. du Vallon, Claremont, Edgbaston; T. Lloyd, The Priory, Warwick; G. B. Lloyd, Edgbaston; J. S. Lloyd, near Solihull; J. H. Lloyd, Birmingham; L. Paylett, Beckenhill.

W. AND H. STEAD (GREENVILLE), Limited.—Capital 20,000*l*., in 100*l*. shares. To carry on business as seed crushers, oil refiners, &c. The subscribers are—W. H. Stead, Liverpool, 35; W. Grey, Hull, 25; J. Temple, Liverpool, 25; M. Stead, Harrogate, 35; J. V. Hope, Great Crosby, Liverpool, 10; S. Field, Liverpool, 5; H. Thompson, Liverpool, 5.

GREAT YARMOUTH MUTUAL FISHING SMACK INSURANCE SOCIETY (Limited).—To acquire the business of a company bearing the same title. This company is limited by guarantee, the subscribers being—W. Harrison, Great Yarmouth; W. H. Willes, Great Yarmouth; J. S. Macey, Lowestoft; G. Baker, Great Yarmouth; G. Blake, Great Yarmouth; W. H. Makepeace, Great Yarmouth; T. Leaper, Gorleston; C. Crispin, Lowestoft.

JOHN BELLERBY AND SON (Limited).—Capital 20,000*l*., in 20*l*. shares. To take over the business of John Bellerby and Son, of York, match manufacturers. The subscribers are—G. Leeman, M.P., 7, Dean's-yard, S.W., 50; John Close, York, 50; W. A. White, York, 10; T. F. Wood, York; J. Close, jun., York, 10; H. G. Baston, York; J. Wilkinson, York, 50.

LYN STEAMSHIP COMPANY (Limited).—Capital 12,000*l*., in 100*l*. shares. For the purpose of building an iron steamship called the Lyn. The subscribers are—J. Ford, Bristol, 20; L. Fry, Bristol, 20; G. Woodward, Bristol, 20; P. M'Clean, Great George-street; F. Stileman, Great George-street, S.W.; R. Fry, Bristol, 8; W. Fuidge, Bristol, 2.

MULLER'S PATENT WATER METER COMPANY (Limited).—Capital 25,000*l*., in 5*l*. shares. To acquire from Mr. J. A. Muller, of Amsterdam, patent rights in connection with improvements in apparatus for measuring water or other liquids, applied also as a current meter and motor. The subscribers (who take one share each) are—T. Glen, Grantley House, Moulsey; W. Holmes, King-Stanley; H. Shaw, Nailsworth; E. Walduck, 148, Gresham House; T. J. Clinton, 25, Charlotte-street W.; J. H. Thorne, 3, Brompton-square; J. A. Muller, 30, Craven-street, Strand.

MERCHANTS' JOINT STOCK BANK (Limited).—Capital 100,000*l*., in 5*l*. shares. To carry on the general business of a banking company. The subscribers

are—Arthur Eaton, 17, Union Grove, Clapham, 10; W. Franah, 95, Blackman-street, Borough, 1; I. C. Mackonnell, 103a, Strand, 10; W. T. Maddox, Bridge Wharf, Kingsland-road, 10; E. Rilley, 14, Oxford Market, W., 10; John Wilson, Woodland Villa, Highbury, 5; E. Saunders, 233, Harrow-road, 15.

YARMOUTH AND GORLESTON TRAMWAYS COMPANY (Limited).—Capital 25,000*l.*, in 10*l.* shares. To purchase the business and undertaking of the Great Yarmouth Tramway Company (Limited.) The subscribers (who take one share each) are—T. H. Evans, 6, Paddington-street, N.; H. Groom, 4, Clarendon-terrace, Chiswick; H. Garsford, Booth-street, Spitalfields; G. Howard, 17, Tavistock-street, W.C.; H. W. Birks, Brecknock-road, N.W.; J. C. Hoge, 11, Maryon-road, Charlton; E. R. P. Otto, 7, Walton place.

ALPHA STEAMSHIP COMPANY (Limited).—Capital 16,300*l.*, in 20*l.* shares. To carry on the general business of a steamship company. The subscribers are—P. T. Brantingham, Wanstead, Essex, 150; Wm. Moore, 59, John-street, Sunderland, 100; J. R. Fairman, 21, John-street, Sunderland, 35; Robert Terry, 3, Bridge-street, Sunderland, 15; W. Brantingham, Sunderland, 20; H. Graham, Sunderland, 10; John Rogerson, Newcastle, 145.

ORIENTAL LEATHER AND LEATHERETTE COMPANY (Limited).—Capital 65,000*l.*, in 10*l.* shares. To carry on business as dealers in a fabric known as Oriental leather. The subscribers (who take one share each) are—John Harrington, Fairlawn, Isle of Wight; W. C. Straker, New Court, E.C.; E. J. Mathew, 37, Queen Victoria-street; T. J. Rowan, 108, the Wool Exchange, E.C.; T. Rowan, Ryde, Isle of Wight; E. B. Goodwin, 1, Belmont-road, S.W.; G. J. H. Kilner, 63, Regent's Park-road.

HURMAN'S COMPANY (Limited).—Capital 10,000*l.*, in 100*l.* shares. To take over the business of the Badminton Club, Piccadilly.

*** **With this week's Journal a SUPPLEMENTAL SHEET is given,** which contains—On Colliery Explosions (J. Ashworth); the Scotch Miners, and their Leaders; the London Coal Supply (W. J. Thompson); Rock Drills (C. Mackenzie; Loam and Son); New South Wales at the Paris Universal Exhibition, 1878 (R. D. Adams); Mining in New Caledonia, New Guinea, &c. (R. D. Adams); Tin in Tasmania, and Cornish Miners (F. D. Wickham); Mining in the East—No. XXIX.; Richmond Mining Company—the Committee's Report; Richmond Mine, the Report; Richmond Consolidated Mining Company; Flagstaff Silver Mining Company; South Aurora Silver Mining Company (D. Maxmillan; F. G. Taylor); New Quebrada Company (W. W. Bird); Port Phillip and Colonial, and New Zealand Kapanga Gold Mining Companies; Don Pedro North del Rey Mining Company; Gold, and Gold Mining (J. S. Houston); Hultafall Mining Company (G. Batters); the Tin-Plate Trade; an Examination into the Position and Prospects of Certain Mines, No. III—South Condurrow (W. Gabbott); Lead Mines in the North—West Pateley Lead Mines and the Duke of Devonshire's Grassington Mines; Lead Mines in the North—West Pateley Lead Mines, &c. (J. E. Harrild); Mining Investments (M. F. Dormer); the Five-weeks Month; Devon Great Consols—the Agents (R. Symons); Devon Great Consols; Wheal Peevor; Assheton and West Assheton Lead Mining Companies; New Consols (R. Symons); Kingston Consols Mine (E. A. Saunders); Great Wheal Rodd (W. D. Mann); Mineral Resources of Ireland—County Clare (J. Ryan); East Caradon Mine—Improved Gunpowder—Industrial Chemistry—Metallurgical Album—Patent Matters—Meetings of Bettwys-y-Coed, South Condurrow, General Mining, Medlyn Moor, Dinevor, Duffryn, and Neath Abbey Companies.

TO THE METAL TRADE.

FOR COPPER, TIN, LEAD, &c., apply to—
MESSRS. PELLY, BOYLE, AND CO.,
SWORN METAL BROKERS,
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, APRIL 19, 1878.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 10 7½	—
,, Scotch, all No. 1 ...	2 11 6	3 10 0
Bars, Welsh, f.o.b. Wales	5 2 6	5 5 0
,, ,, in London.	5 15 0	—
,, Stafford., ,, .	6 15 0	7 10 0
,, in Tyne or Tees ...	5 10 0	5 15 0
,, Swedish, London ..	9 15 0	—
Rails, Welsh, at works..	4 17 6	5 0 0
Sheets, Staff., in London	8 5 0	8 10 0
Plates, ship., in London	6 15 0	7 5 0
Hoops, Staff.	7 15 0	8 0 0
Nail rods, Staff. in Lon.	6 10 0	7 0 0
STEEL.		
English, spring 13	10 0-19	0 0
,, cast 30	0 0-40	0 0
Swedish, keg.....14	0 0-	—
,, fag. ham. 15	0 0-	—
LEAD.		
English, pig, common...17	0 0-17	2 6
,, ,, L.B.....17	5 0-	—
,, ,, W.B. 18	0 0-	—
,, sheet and bar..18	5 0-	—
,, pipe.....19	0 0-	—
,, red 19	15 0-	—
,, white 24	10 0-26	10 0
,, patent shot ...23	0 0-	—
Spanish.....16	15 0-	—
NICKEL.		
Metal, per cwt. 18	0 0-20	0 0
Ore, 10 per cent. per ton.24	0 0-26	0 0
QUICKSILVER.		
Flasks of 75 lbs., ware. 7	0 0-	—
SPELTER.		
Silesian..... .. 18	0 0- 18	5 0
English, Swansea 21	0 0-	—
Sheet zinc 22	0 0- 23	10 0

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	67 0 0-	67 10 0
,, bars ,, ,,	68 0 0-	68 10 0
,, refined.....	69 0 0-	—
Australian	62 5 0-	—
Banca	66 0 0-	—
Straits	62 5 0-	—
COPPER.		
Tough cake and ingot.	68 0 0-	—
Best selected	69 0 0-	69 10 0
Sheets and sheathing.	72 0 0-	—
Flat Bottoms	75 0 0-	—
Wallaroo	73 0 0-	—
Burra, or P.C.O.	71 0 0-	—
Other brands	69 0 0-	—
Chili bars, g.o.b..nom.	62 10 0-	—
PHOSPHOR BRONZE.		
Bearing metal	£112 0	0
Other alloys	£120 0 0-	140 0 0
BRASS.		
Wire	7¼d.-	7½d.
Tubes.....	7¼	- 7½
Sheets	8	- 8¾
Yel. met. sheath. & sheets.	6	- 6¼d.
Nails composition.....	8¾	- 9
TIN-PLATES.*	per box.	
Charcoal, 1st quality ...	1 0 0-	1 1 0
,, 2nd quality ...	0 19 6-	1 0 0
Coke, 1st quality	0 16 0-	—
,, 2nd quality	0 15 0-	—
Black .....per ton	16 0 0-	16 10 0
Canada, Staff. or Gla., at Liverpool	11 10 0-	12 0 0
Black Taggers, 450 of 14 × 10	30 0 0-	—

REMARKS.—A comparatively limited amount of business has been transacted in nearly every branch of the metal trade, and as the holidays are now about to commence our markets will doubtless remain in a lifeless and uninteresting state during the greater part of the ensuing week. There will be no metal exchange after to-day until Tuesday next, and there will be, as usual, a much longer interval before any general resumption of business takes place. The demand for consumption is always quiescent about holiday time, and the extremely dull state of trade generally now prevailing will not help to make it any better than on previous occasions. The shipping trade will probably be conspicuous for its inactivity, and, in fact, the extent of business from all sources may be expected to consist of a very insignificant character, and prices will be subject to little or no variation. Any alteration that might be made would undoubtedly arise more from political influences than any other cause, but it is hoped, for Easter week at least, that nothing will transpire to interfere with the public festivities or throw a gloom over the country, or in any way to disturb its accustomed peace and quietness. The apprehensions of war naturally enough excite great anxiety in the minds of holders, and the firmness they have hitherto manifested is beginning to waver. They now see the mistake they made in having outstood the market and holding on to their stocks. We quite admit it is a most difficult matter for those who have a large interest concerned to form an unbiassed opinion, and still more difficult to take action when the sale will leave a positive loss, but how often would that loss have been minimised if there had been no hesitation? The great fault of too many operators is that they fail to turn round sharp enough to escape a heavy loss, whereas as soon as they see they have made a mistake in operating in the wrong direction they should cut their loss, instead of holding on to a bad bargain in the mere hope that by chance the market may right itself, more especially at a time like the present, when events of a momentous character are pending, and very serious consequences might follow. Liabilities and responsibilities cannot be too much curtailed, and by reducing them within safe limits a crisis may be tided over, and our several markets preserved from panic rates, even though a declaration of war be made against Russia.

COPPER.—The present stock of Chili in Swansea and Liverpool amounts to 18,692 tons, and in Havre 9300 tons, or in round figures 28,000 tons in all. The addition during the past fortnight to the English stocks is about 750 tons, and considering the heavy stock that previously existed it will probably not be deemed a flattering feature, or in any way calculated to strengthen the market, or likely to impart a confident tone in respect to future prices. An increase of this magnitude speaks for itself, and needs but little comment. Such conclusive testimony of the weakness of our market cannot fail to produce a marked effect, for it proves beyond all dispute the continuance of accumulations upon overwhelming stocks, and the excess of supply over demand. There is no escape when this is the case; prices must inevitably decline to stimulate consumption, as no other method has yet been discovered to succeed effectually, and it would be unreasonable and unwise to attempt to withhold a moderate reduction. The altered state of the market demands it, and as a protective measure against further enlargement of importations it is absolutely requisite. It may be said that the present price does not interfere with the consumption, and, therefore, no necessity exists for lowering prices, and as holders are great losers in accepting current rates it is not right to press them into greater concessions. In the first place we do not contend that prices are interfered with by the ordinary consumption; quite the contrary, we believe they are very considerably facilitating it, and we do not know where the market would be if it were otherwise. But the present rate of consumption is not keeping pace with the supply, and fresh outlets must be created to absorb the increased production, and although current prices may be low enough for all known requirements, yet are not sufficiently cheap to bring copper into more general use, and it is with the object of creating an extraordinary or more extended demand that cheaper prices are necessary. Secondly, the question of price does not altogether rest with holders. They have doubtless overrated the value of the commodity they are dealing in, but that is a matter entirely resting with themselves, and they must not blame anybody else for their indiscretion or expect others to bear their burdens. They had two courses open to them all along, either to make an immediate sacrifice, or be prepared to take the chance of the market some time hence. The former would probably be found the more discreet course; still, as a heavy market with increasing stocks naturally tends downwards, as long as producers continue to pour into the market larger quantities than are required, there is no hope for it, and the value of existing stocks will be chiefly decided and estimated in proportion to future supplies, and as there is no particular falling off anticipated higher prices are remote; in fact, the market for Chili bars seems to be giving way, and daily drawing nearer to Rogers's price—namely, 60*l.* per ton. This and next week customary holidays will cause a diminished consumption, and perhaps fewer deliveries, so that statistics at the end of the month may even be more unfavourably than the last. The advices from the East are discouraging, and not above 70*l.* for copper sheets, and as regards yellow metal orders outstanding at 6d. have been cancelled. Best selected copper has been offered at 69*l.*

IRON.—Orders have not been more plentiful than of late, English bars forming a slight exception, and the disturbed state of some of the manufacturing districts, owing to strikes and lock-outs, is not calculated to improve the market, and will certainly prevent any possibility of an advance taking place. If any proof were needed to convince the labouring classes of the necessity that exists for cheaper labour it is the published account of the limited liability companies, wherein it will be found that losses are the rule and profits the exception. Very few companies, indeed, can declare a dividend out of revenue at the present time, and in most instances where losses have been avoided it has been a source of congratulation to the proprietors and shareholders, but the balance-sheet of very many companies has, unfortunately, revealed a most sorrowful and discouraging state of things, and it is a matter of the gravest moment as to whether some of the largest and oldest mills will be able to continue operations much longer. The change which has come over the trade of the country cannot be treated as of a transient character or trivial, and unless modifications and reorganisations are introduced and adopted there will be little or no chance of a general resuscitation. There is great danger as well as loss incurred in perpetuating a worn-out system, and whether it arises from defective machinery and obsolete plans and arrangements, or from an imperfect understanding between masters and men, it is of little consequence, for wherever the fault lies it must be at once looked to and remedied. If the men will bear their share of the burden the masters may continue their works, in the hope that something better hereafter may offer which will compensate them for present losses, and there is not the least doubt but what all will end well if it works well; it is in the working where the default is most felt; naturally enough no one likes working for only half or perhaps less than what they had previously earned, but the working classes must be reasonable, and consider that they are not the only ones who suffer in times of adversity. Increased work and lower wages is undoubtedly hard to bear, but whatever can be done, a half loaf is better than none at all, but we must all work harder and faster, and endeavour to pull things through into their proper shape again; it would be cowardly and unbecoming the spirit of an Englishman to sit down in despair, happily the generality of our countrymen are not made of that material, and would scorn to pass their time in idleness sooner than apply themselves to hard work, even though it be unremunerative, and we feel confident that what is most wanted is a truthful statement of the facts to be represented to the men by those in whom they have implicit confidence, and if this were done in a plain and intelligible manner to their understanding all necessary concessions would be yielded. It is very certain that unless the men do submit there will not be enough work to distribute amongst them to provide the necessaries of life, for many more mills will be added to the list of those already closed, and distress will increase. There would be no necessity for Trade Unions if there was a proper agreement drawn up by specially appointed committees of various iron districts to adjust the men's wages according to an approved and reorganised sliding scale. The interest of the men deserves to be watched and protected as much as that of the masters, but neither will be served by constant disputes and strikes and lock-outs; all suffer by such folly, and it is madness to act in such a manner. If the future is to be more successful than the past, there must be no more of these sort of actions whenever trade falls off, or there is an excessive foreign competition; the men must work for a bare existence until trade recovers its normal position, and better prices are obtainable; for if the men employed on the works in foreign countries can work on low wages, surely also those employed in England can do so. If a man's wages be small, and it be impossible for the masters to continue employing their men at their previous rates, surely the common good sense of the men ought to tell them that striking would be about the worse thing to do for their own welfare and that of their families. The market generally for the past week has been without any material alteration, and no improvement is anticipated until the Easter holidays are over. The demand continues slack, and prices show but little variation. All descriptions of iron are alike in ther limited request, and although quotations are low, they appear to be too high for buyers, consequently but little business is transacted either in the home or shipping trade. Everything should be done to improve the trade, and everyone who has it in his power should do his utmost to bring this about; and although this has been urged over and over again, still we cannot but think that there are some who might, without loss to themselves, make some slight concessions.

The reports from the various districts are still discouraging to business men, and it is said that many of the works will, through the dulness of trade, prolong their Easter holidays very considerably. The reports of the quarterly meetings held last week at most of the chief districts throughout the kingdom show that the former interest which was taken in these meetings has very much fallen off, and the influence which they had on prices had almost altogether abated. Therefore, business has continued in undisturbed quietness through the whole of the week, as it has done for many months. Pig-iron at South Durham is said to have been most inactive. Such iron as was wanted for immediate requirements having chiefly been purchased last month, and buyers being unwilling to purchase on speculation, has been the chief cause of the monotonous state for this particular kind of iron. Business is also much impeded by the uncertainty that the crisis in Eastern Europe throws over the trade. Masters, however, have been pretty firm in their quotations, in only but few instances, it is said, that they have receded in the present existing rates, for No. 1, 43s.; No. 3, 39s. 9d. to 40s.; and No. 4 forge, 38s. per ton. Enquiries for plates and bars are reported as being very few, and business transacted on a limited scale, contracts being mostly made at 6*l.* 5s. to 6*l.* 7s. 6d. per ton for the former, while the common qualities of the latter are still obtainable at 5*l.* 12s. 6d. per ton. The manufactured trade is reported without variation.

The business done in the Rotherham district has been without change. This week has been similar to its predecessors in the way of dulness. Many of the works are lying in a most idle condition, the demand being particularly slack, with prices as last quoted. However, at Leeds best Yorkshire iron is said to be in fair request, but the forges mostly are only working short time, four days per week being the general rule. Manufacturers are but moderately employed in the execution of a few straggling orders. Trade at Sheffield is reported without change or improvement. Nevertheless, a few orders have been given out, which have been kept back, and although masters have been doing their utmost to push trade still they have met with but very little success, and in some instances it is said they are quoting for Swedish iron at less money than it would cost, so anxious are they to restore business to its former activity. But the temptation does not appear to be sufficient to induce buyers, so fearful are they of making losses on the transactions. The Barrow-in-Furness market is said to be steady, and a fair business is reported in hematite brands. Other kinds of iron are in but small demand, both the house and shipping trade being represented as being dull. Prices have remained without alteration, and we continue to quote 64s. per ton for No. 1 Bessemer, and 61s. for No. 3 forge. Finished iron is in a very dull state, but the demand and consumption of ore has improved without any alteration being made in value. The foreign trades are said to be dull, without any material alteration in prices.

The French market is reported as having somewhat revived, although there appears little chance of immediate improvement. The mail from New York of the 3rd inst. states that the American markets are quiet, and there appears on the part of the makers not so much anxiety to press sales, and quotes No. 1 X $18 to $19; No. 2, $17 to $18; and forge, $16 to $17. A small business has been done in Scotch; Glengarnock quoted at $24 50 c.; Eglinton, $24; and Coltness, $25. Scrap iron is said to be dull at $21 to $22 for No. 1 wought from yard. A fair business done in rails at $32 to $37, and old $19 to $19 50c. The demand continues dull for manufactured, and prices remain unchanged. Scotch pig-iron at Glasgow is reported as being very quiet, business being chiefly done at 50s. 11d. to 51s. 1d. The demand for makers' iron is still said to be languid, and with little or no improvement in prices. The Middlesborough weekly trade shows no variation, and No. 3 is quoted at 39s. 6d.

SHIPMENTS.

For the week ending April 14, 1877	Tons	10,721
For the week ending April 13, 1878		9,441
Decrease		1,280
Total decrease for 1878		6,950
Imports of Middlesborough pig-iron into Grangemouth:—		
For the week ending April 14, 1878	Tons	8,025
For the week ending April 13, 1877		6,073
Decrease		1,952
Total increase for 1878		479

FURNACES.

In blast April 14, 1877	110
In blast April 13, 1878	89

TIN.—Business done in this market has been of a very limited character. At the earlier part of the week what few transactions were carried through were chiefly done at 62*l.* 10s. to 63*l.*, but as the week advanced small sales were made at 62*l.* 5s. per ton, at which the market closes for cash and next month. The advices from New York still show that the market there continues dull and weak, the demand being particularly slack; nevertheless, prices still show but little variation from the quotations that have been ruling the markets for the last few weeks. Banca is still obtainable at 17½ c., Straits and Malacca 14¾ c. on the spot, and 14¾ c. to arrive. Australian and common English, 14½ c.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening. The Glasgow market has been weak, and the price of G M.B. at the close yesterday showed a fall of about 4d. a ton; the price at the close on Thursday was 50s. 7½d. buyers; last week warrants closed at 51s. To day there is no market. We quote makers' No. 1 iron—Gartsherrie, 58s. 6d.; Coltness, 63s.; Calder, 58s. 6d.; Langloan, 60s.; Summerlee, 58s.; Monkland, 51s. 6d., f.o.b. Glasgow; Glengarnock, 57s.; Eglinton, 52s., f.o.b. Androssan; Shotts, 60s., f.o.b. Leith; Kennicl, 54s., f.o.b. Bo'ness. The Iron Trade has been very quiet this week; this is usually the case immediately after the Quarter-day, which was held last Thursday, at Birmingham. The large buyers supplied themselves at the Quarter-day, and on this account have not since been in the market.

There is a good stroke of work being done in galvanised iron, and fair orders were given out at Quarter-day to Mr. John Lysaght, of Bristol, the Gospel Oak Company, David Rose, of Moxley, Walkers, of Wolverhampton, and other high-class makers well known in Melbourne and other foreign markets.

The demand now runs on these established brands, and inferior articles made from inferior sheets are losing ground in the consuming markets of the colonies, it being found that galvanised iron coated on bad sheets will not stand the weather, &c. The best prospect on our market just now is for iron for fencing and fencing-rods, the manufacturers of this class of work having good orders in hand both for the home and foreign districts. There is little change in the metals—Spelter Silesian, 18*l.* 10s. to 19*l.* 15s.; copper Chili slab, 63*l.* 10s.; English tough, 68*l.*; tin, Straits, 63*l.* 15s.; Australian, 63*l.* 15s. Tin-plates without change, the market very unsatisfactory. Mr. Loveridge has started a portion of the Shrubbery Iron-works to make puddled bars, and intends to stock them until the trade improves.

Messrs. HARRINGTON, HORAN, and Co. (Liverpool)—Arrivals here during the fortnight of West Coast, S.A., produce:—Illemani, from Valparaiso, 930 tons bars, 100 tons ingots.—At Swansea—Glenudal, from Carrizal, 768 tons regulus; Llewellyn, from Carrizal, 220 tons regulus, 560 tons bars. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barills.
Liverpool.....	—	917	12,637	—	—
Swansea	2189	6275	2,353	—	—
Total.....	2189	7192	14,990	—	—

Representing about 18,692 tons fine copper, against 17,935 tons March 31; 15,042 tons April 15, 1877; 10,139 tons April 15, 1876; 12,428 tons April 15, 1875. Stock of Chili copper in Havre, 9300 tons fine, against 10,450 tons April 15, 1877; stock of Chili copper afloat and chartered for to date, 11,000 tons fine, against 11,300 tons April 15, 1877; stock of foreign copper in London, chiefly Australian, 5700 tons fine, against 3766 tons April 15, 1877.

According to the Board of Trade Returns the total imports and exports into and from this country for the first three months of the following years were—

	1876.	1877.	1878.
IMPORTS—Copper in ores .....Tons	2,265	2,394	2,358
Ditto, regulus	3,540	4,515	4,113
Ditto, bars, cakes, and ingots	8,092	10,170	8,986
In pyrites (estimated)	3,987	4,604	3,814
Total imports	17,884	21,673	19,267
EXPORTS—English, wrought & unwrought.	5,103	5,624	8,574
Foreign copper, unwrought.....	3,542	4,778	3,367
Yellow metal.....	3,248	4,492	4,011
Total exports.....	11,893	14,894	15,952

Messrs. PIXLEY and ABELL—GOLD: The orders for export have been supplied by the Australian steamer and private sources; there have, therefore, been no withdrawals from the Bank, except 75,000*l.* (sovereigns) for the River Plate. On the other hand, 125,000*l.* (sovereigns) from Melbourne and Sydney have been sent in. The arrivals comprise—16,300*l.* from the West Indies, 336,970*l.* from Australia and India, 27,410*l.* per Lusitania, Melbourne; total, 380,680*l.*—SILVER: After the issue of our last circular the silver by the Pacific steamer was sold at 53⅞*d.*, the market being very quiet; a few small orders caused a slight improvement to 54*d.*, which is now the nearest quotation we can give. The arrivals have been about 42,000*l.* from the West Indies, 140,000*l.* from Germany, 20,000*l.* from America: total, 202,000*l.*

The MINING SHARE MARKET has been dull this week, with very little business doing, speculative or otherwise, thus our quotations for the most part are merely nominal. This reaction, after the activity we noticed in our last, may be accounted for by the anxiety again cropping up with regard to the Eastern Question, and the advent of the Easter holidays. In the present uncertainty of affairs, and in holiday times, fresh transactions, especially those of a speculative character, are not likely to be opened—at any rate till the middle of next week.

TIN MINES, after the little excitement we referred to in our last, soon became flat again, and there has scarcely been a transaction in shares this week, consequently quotations are nominal.

South Condurrow, 11 to 11½; at the meeting (full particulars of which will be found in another column) a dividend of 8s. per share (2449*l.* 4s.) was declared, leaving 2204*l.* 5s. 7d. in hand. The tin sold for four months (237 tons) realised 9191*l.*, and left a profit of 2534*l.* 14s. 10d. The report was very favourable, and the next meeting is likely to show as good results as this one. Wheal Agar, 4 to 4½; the tin sold during the past month has realised 792*l.*, and a profit of about 230*l.* The lode in the shaft is worth 80*l.* to 100*l.* per fathom. Carn Brea, 42½ to 45; Cook's Kitchen, 1½ to 2; Dolcoath, 30 to 32½; Penstruthal, 4s. to 5s.; South Frances, 2 to 2½; Tincroft, 11 to 12; West Godolphin, 1½ to 1½; Wheal Grenville, 3½ to 4; Wheal Peevor, 6½ to 6¾, ex div.

COPPER MINES are without particular change, and there is no business whatever doing in shares. Devon Great Consols, 2½ to 3; we understand the directors have determined to do away with the four-week system, and return to the old one of 12 monthly payments in the year, and their example will probably be followed by other mines in the district which are being carried on at heavy loss to the shareholders. Bedford United, ⅛ to ¼; the directors have made a call of 1s. per share. Wheal Crebor, ½ to 1; the No. 2 stope has improved to 20*l.* per fathom. Mellanear, 4¼ to 4½; Parys Mountain, 8s. to 10s.; West Tolgus, 64 to 66.

LEAD MINES have been moderately active, but for the most part prices here, as well as in other mines, are mostly nominal. Vans have been more freely offered, and leave off at a decline—21 to 22. East Van, 6 to 6¼. Tankerville, 4 to 4½; the shaft is down 10 fms. 4 ft. below the 192, and the ground congenial for ore. The 192 west is worth 2½ tons of lead ore per fathom. The 192 east good stones of ore. The winze below the 192 east is worth 2½ tons. The sampling for the month is 100 tons of lead ore. West Tankerville, 4 to 4½; the sampling here is 35 tons of lead ore. D'Eresby Mountain, 80 to 100; in clearing No. 5 level, which is the great point in the mine, some fine stones of lead have just been broken in the bottom, 200 fms. behind the rich stope in No. 4, which has now been worked nearly to the surface. D'Eresby Consols, 12 to 14. Pandora, 14s. to 16s.; the sampling on the 29th is 35 tons of lead, and a week later 30 to 40 tons of blende will be ready. The 13 south, on new lode, has improved.

South Darren, 37s. 6d. to 42s. 6d. Roman Gravels, 8 to 8½; the 95 south is worth 2 tons of lead per fathom. The sampling for the month is 180 tons of lead ore. Ladywell samples 25 tons. Great Laxey weak at 17½ to 18½; Glenroy, 15s. to 17s. 6d.; Grogwinion, 3½ to 3¾; Herodsfoot, 7 to 8; Leadhills, 3½ to 4; Llanrwst, 2 to 2½; North Laxey, 3s. to 5s.; Pateley Bridge, 2¾ to 3½; Rookhope, 17s. 6d. to 20s.; Temple, 3½ to 3¾; West Assheton, ¾ to 1; West Chiverton, 12 to 14; West Pateley Bridge, 2 to 2½; Wye Valley, 1¾ to 2½; West Wye Valley, 3 to 3½; Caron, 2 to 2½; Mawston, 55 to 60; South Cwmystwith, 3 to 4; St. Harmon, 2½ to 3½. Derwent, 1⅜ to 1½; the 93, west of Jefferie's, has improved from 3 cwts. to 15 cwts. per fathom.

FOREIGN MINES.—Blue Tent, 3 to 3½. Hultafall, 5 to 5½; all here we understand going on well. Chontales, 8s. to 10s.; Eberhardt and Aurora, 6 to 6½; Flagstaff, 10s. to 12s. 6d.; Frontino and Bolivia, 2 to 2½; New Quebrada, 1½ to 1¾; Pestarena, 4s. to 6s.; Richmond, 8¾ to 9. Santa Barbara, 25s. to 30s.; the advices this month show a profit of 251*l.* The gold return was 1310*l.*; costs, 1059*l.*

The Market for Mine Shares on the Stock Exchange has continued to show the improved feeling noticed last week, but the approach of the Easter holidays has, as usual, caused the amount of business done to be very limited. The Mineral Corporation of Great Britain, whilst appreciating certain portions of the remarks upon the enterprise in last week's Journal (for although the company is not referred to by name it is assumed that it was the undertaking intended), are annoyed that it should have been noticed as a "second piece of financial philanthropy." The promoters, who are gentlemen of thorough business experience, do not claim in the least degree the title of financial philanthropists. The company has been founded on purely commercial principles, the chief object being the working of British mines (by British miners and mine managers, but superintended by French mining engineers) with French capital. The mines purchased will be legitimately worked, and there will be no speculation in the shares, it being believed that the dividends paid will show an ample return upon the capital invested. The Mineral Corporation of Great Britain is not to be regarded as any attempt at "financial philanthropy," but as a legitimate undertaking entirely distinct from American and other schemes which have produced so bad an effect upon the market. It is very truly pointed out the mere fact of French capitalists subscribing the 80,000*l.* capital is sufficient to show their *bona fides*. They do not ask the British public for a penny—the company is really an English one worked by foreign capital, and it is believed that the majority of the board will be Englishmen. That the expenditure of this capital will be beneficial to English mining cannot be doubted, and the Frenchmen who subscribe it are unquestionably entitled to every encouragement and consideration.

Although the statement made in this place a fortnight since that the return to the calendar month—that is making 12 pays per year instead of 13—was not a workman's question, and that it only effected the agents and day workmen has been denied, the fact remains unaltered. The 13 pay system given the utmost possible dissatisfaction to adventurers, who are periodically put to great in-

nvenience by an extra pay coming in against the same number sales; and it was probably the most foolish step ever taken in the interest of Cornish and Devon mining when the calendar month stem of payment was abandoned. Were it merely a question of reduction of ges it would be quite as easy for a reduction of 10 per cent. to be made as to er the 13 pay to 12 pay system, but it is a matter of principle, and the return to e 12 pay system is a means of stamping out a mistake which was made a few years nce. The directors of the Devon Great Consols may be congratulated upon their mness in the matter, for at the board meeting on Wednesday it was resolved to ve only 12 pay-days in the year. There will be, as formerly, eight months of ur weeks = 32 weeks, and four months of five week = 20 weeks, making up the weeks. The directors very truly state that they surely ought to consider the verty and distress (represented by the absence of profits received) of the mine venturers, as well as of a certain number of the miners. With regard to maagement and agency at Devon Great Consols, there is no doubt that much reuction might be made in the number employed, as well as in the salaries paid those retained, and this reduction would not interfere with the efficiency in the allest degree. Turning to a more cheerful subject—the meeting of South Conrrow—the directors and officials at the mine may be congratulated upon the mirable results which have been achieved by sound judgment and economic anagement. The Chairman was enabled to dispute the claim of Wheal Eliza of aving paid the largest profits for the six months. This he was glad to be able correct in favour of South Condurrow. The Wheal Eliza, which was the mine question, had paid 3072*l.* in dividends in the six months, but South Condurrow ad paid 3283*l.* in the same period. He had only further to propose a dividend of s. per share be declared; he mentioned, moreover, that the largest dividend previously paid was 7s. 6d. per share in 1872, when tin was 88*l.* per ton. With the present produce, and tin at that price, they would to-day have had 14,000*l.* to deal ith, instead of 2500*l.* It is not long since that a correspondent in the *Mining ournal* expressed great gratification that he was "rapidly arriving at a state of *statu quo*," and the brilliant results at South Condurrow generated an equally right display of classical feeling on the part of Mr. Leach, who energetically declared that the traducers of South Condurrow were "*non est*, and the best place for them." When will men be wise enough to avoid classical and foreign quotations n ordinary business?

Fortuna, 4¼ to 4⅜; the directors' report, prepared for presentation at the meeting on Thursday next, show that the profit for the six months was 6346*l.* 19s. 6d., out of which the dividend of 5s. per share, already announced, has been declared, and the reserve fund increased to 8254*l.* 5s. 3d., leaving 416*l.* 2s. 3d. to carry forward. Linares, 5 to 5½; the six months' profits were 2844*l.* 3s. 8d., out of which the 4s. dividend, previously announced, has been declared. Alamillos, 1 to 1½, ex div.; the profit on the six months was 1600*l.*, and the balance of undivided profit 1856*l.* 13s. 10d., out of which the dividend of 1s. per share, already announced, was declared, and 906*l.* 13s. 10d. carried forward.

St. John del Rey, 305 to 315; the advices received on Monday state the profit for February to have been 6699*l.* 5s. 1½d. The total cost for the month is less than that of January by about 261*l.*, but in consequence of the low produce the profit is not so much by about 1400*l.* The output is large, and the duty of sinking and driving in the exploratory works very satisfactory. Don Pedro North del Rey, ⅛ to ¼; the profit for February was 166*l.* 13s. 2d. The produce for March was 4500 oits. Frontino and Bolivia, 1⅞ to 2; the profit for the month was 453*l.* gross, from which must be deducted 116*l.* 13s. 4d. expended on capital account. At Antioquia the loss was 58*l.*

Richmond, 9⅛ to 10; the usual weekly telegram from the mine at Eureka states that the week's run was $90,000, from 1100 tons of ore. During the week the refinery produced $40,000. The application for a permanent injunction restraining the Eureka Consolidated from working in the disputed ground has been heard in the United States Circuit Court, at Carson, and refused. The secretary (March 18) writes—I am requested by the directors of the above company to inform you that they have received information that the injunction to restrain the Eureka Company from working under the disputed ground has been refused by the District Court at Carson, on the ground of want of jurisdiction. A similar application has now been made to the Supreme Court at Washington. Notice has also been served on the Company in Nevrda of suit to account for the ore removed from the Potts Chamber. The damages are laid at $2,500,000, but the company are in a position to prove that the market value of the ore removed was under $20,000.

Eberhardt and Aurora, 5¾ to 6¼; Mr. Mathewson, who has just returned from Hamilton, informs the Eureka Sentinal that the face of the Eberhardt and Aurora Tunnel is still in a very favourable formation, the only trouble being that it does not assay sufficiently to justify its working. The rock in both the cross-cut and tunnel, to the eye, looks as well as any ore ever found on the hill, but the highest assay from it has been $15. The cross-cut is in about 45 ft., and the formation in the face of the tunnel is very favourable to driving. In the old workings of the Eberhardt and Aurora the body of ore from which discovery so much was expected has pinched out to a small seam. The company have on the dumps about 1500 tons of good milling ore, which will, probably, be worked this season. With regard to the Arizona bonanza, Mr. Henry Sewell writes (March 26) that 14 tons Silver King concentrated ore, valued at $30,000; also 45 sacks rich silver ore from the Belcher and Crown Point Mines, Pioneer district, Arizona, were shipped for San Francisco yesterday.

The latest advices from Utah state that the mining matters in the old camps have assumed a healthy appearance lately, which can be accounted for only by reason of practical men getting hold of the mines. Mines that have failed with managers, whose principal business was to draw salaries, are now paying handsomely. This is as it should be. Practical miners have taken leases and contracts in the old mines, and are doing well. At Bingham and in the Cottonwoods there are mines that had ruined the owners now yielding large profits. The men who take leases of mines are miners by profession—it is their study night and day. Their working hours are not regulated nor their manner of work prescribed by any rules laid down by professional managers. They know the ground in which their hopes are centred, and if they cannot realise fortunes it may be taken for granted that the properties are of no value to anyone. Crowd into the tunnels and shafts the energy otherwise expended, and dividends would, it is thought, soon accrue. The Utah Mine (formerly the property of the Utah Mining Company) will, in the opinion of the mining men of Bingham, under local management be made to pay well, and those in the locality are at a loss to know how such a property could have been allowed to lie idle when the title could be purchased for an insignificant amount. The mines were sold to the English Company for $450,000. Californian advices state that the Ontario Mine is one of the greatest dividend paying mines on the Pacific Coast.

The market for Hydraulic or Gold Washing shares remains steady, and there is again a fair business doing. The Californian advices to hand last mail are jubilant over the deep snow in the Sierra Nevada Mountains, as it ensures plenty of water in all the streams for the season. The snow in some parts reaches the enormous depth of 70 ft. In fact, there has not been so great a depth of snow in the mountains since 1861-2. Blue Tent, 3 to 3½; washing is steadily progressing, and, according to latest advices, the company were obtaining a full supply of water from their own ditch. Oregon: a telegram received during the week announces a partial clean-up, resulting in a return, so far, of $2000. The total expenses of the run are somewhat in excess of this amount, but, as the clean-up is only a partial one, full results are not yet ascertained.

Hultafall, 5 to 5½; it is stated that the lode in the levels continue rich, and the shaft is now down a sufficient depth to cross-cut for another level, it having reached a depth of upwards 25 fms. The dressing machinery has been started, and is going on well, doing good work. From advices just received, the result of a few days working, they have 10 tons of dressed lead dressed up to 80 per cent. and 22 ozs. of silver to the ton, and 10 tons of blende dressed up to produce of 51 per cent. A good parcel will be ready by the end of the month.

Lead mines have not been so active, and fewer transactions recorded. Van, 22 to 23; the 105 west is opening out very well, now worth 4½ tons per cubic fathom. The 90 west is worth 4 tons per cubic fathom. Good progress is being made in working Seaham's shaft; no change elsewhere. Grogwinion, 3½ to 4; the manager's report says the new discovery below the deep adit is still looking rich, and that good progress is being made towards cutting the No. 4 lode at the same depth. He says the mine continues to open out in a satisfactory manner and "never looked better than at the present time." The monthly parcel of 150 tons of lead will be ready for sampling at the usual time. Wye Valley, 1¾ to 2¼; good progress continues to be made at all important points, and a considerable improvement in value has lately taken place. West Wye Valley, 3¼ to 3¾; the bottom level is making good progress, and all other points show a satisfactory improvement. The stopes throughout the mine continue to yield well, and dressing is steadily going on. Caron, 2 to 2½; the bottom level has again improved, and is looking exceptionally favourable. All other works proceeding well. The washing of ore has commenced. Red Rock, 1½ to 2¼; the new discovery reported last week is of importance, being in a new portion of the ground, and will add much to the value of the mine. Another sampling of lead will shortly be made. The mine looking well. St. Harmon, 2½ to 3½; the manager's monthly report is unusually favourable. It states that the lode in the bottom level west has already been cut into 12 ft., that it contains ore all through, and looks kindly, and as soon as the cross-cut is right through the lode driving on its course will commence. In the same level east the lode has also again improved, and now contains a small branch of solid ore of a most encouraging character, and the manager says—"If we strike into a bunch of ore here it will undoubtedly be a large and important one, as the lode is of immense width." The cross-cut towards the south lodes is changing in its character, and water is bursting out on all sides, so that it is believed one of the south lodes is now close at hand. This mine is now about to commence sales of lead, and the first parcel will be sent to market in a few days. South Cwmystwith, 3 to 4; the mine continues to open out well at all points, and to yield lead in paying quantities.

Pateley Bridge, 3½ to 4; operations are progressing satisfactorily. The 30, west on Rake vein, has further improved. West Pateley, 2 to 2½; the vein (Craven Cross) in the 55 fm. level fully maintains its value. The north Rake vein in the 20 fm. level east has improved. Other points proceeding favourably.

Subjoined are the closing quotations:—

Assheton, 1 to 1⅛; Carn Brea, 43 to 45; Court Grange, 1 to 1⅛; Devon Great Consols, 2¾ to 3; Dolcoath, 30 to 32; East Caradon, ¼ to ½; East Van, 6 to 6¼; Glenroy, ⅝ to ⅞; Great Laxey, 18 to 19; Hingston Down Consols, ⅜ to ⅝; Leadhills, 3¼ to 4; Marke Valley ⅜ to ⅝; Minera, 14 to 16; Parys Mountain, ⅜ to ½; Pateley Bridge, 3¼ to 4; Penstruthal, 4s. to 6s.; Roman Gravels, 8 to 8½; Rookhope, ⅞ to 1; Tankerville, 4 to 4½; Tincroft, 1⅛ to 11⅛; Tyn-y-Fron, 1¾ to 1⅝; Van, 22 to 23; West Assheton, ¾ to 1¼; West Basset, ¾ to 1; West Chiverton, 11 to 13; West Pateley, 2 to 2½; West Tankerville, ½ to ¾; Wheal Grenville, 3½ to 4; Almada and Tirito, ⅜ to ½; Argentine, ¼ to ⅜; Birdseye Creek, ⅞ to 1⅛; Blue Tent, 3 to 3¼; Cape Copper, 30 to 31; Cedar Creek, ¼ to ⅜; Chontales, ⅜ to ⅝; Colorado Terrible, 1¾ to 2¼; Don Pedro, ⅜ to ⅝; Eberhardt and Aurora, 6 to 6¼; Exchequer, 1-16ths to 3-16ths; Flagstaff, 9-16ths to 11-16ths; Frontino and Bolivia, 1⅞ to 2⅛; Hultafall, 5 to 5½; I.X.L., 1-16ths to 3-16ths; Javali, ¼ to ⅜; Kapanga, ½ to ¾; Last Chance, ¾ to 1; New Quebrada, 1⅜ to 1⅝; Oregon Preference, 4 to 4¼; Pestarena, 4s. to 6s.; Plumas Eureka, 2¾ to 3; Port Phillip, 9s. to 11s.; Richmond Consolidated, 9½ to 9¾; St. John del Rey, 305 to 315; Sierra Buttes, 1⅝ to 1⅞; South Aurora, ⅛ to ¼; Tecoma, 1-16ths to 3-16ths.; United Mexican, 1½ to 2.

COLLIERIES.—The changes in these shares during the present week have been slight and unimportant, and business has been restricted to dealings in shares of only a few of the more prosperous undertakings. The coal trade is quiet throughout the country, with, in some districts, signs of healthy improvement. The imminent prospect of a prolonged strike amongst the Lancashire cotton-spinners has, and will of course continue to have, a depressing effect upon the North Country coal markets, and the present state of suspense as regards Eastern affairs will, no doubt, prevent any immediate improvement. In South Wales, however, trade is, comparatively speaking, very brisk. Considerable quantities of coal and iron continue to be exported, and large shipping orders are in hand, particularly for anthracite coal, which is coming more and more into favour for steam purposes. We understand that the Ynisedwyn Company, recently formed to work the well-known property of a former company of the same name, is receiving a good deal of attention amongst the investing classes, a large proportion of the applications for shares having come from South Wales and districts immediately surrounding the property. This fact is well calculated to instil confidence into the minds of investors, who personally, perhaps, may know little or nothing of the property beyond what they find specified in the prospectus and the reports accompanying it. It is, moreover, a guarantee of economy and efficiency in the local management, for there can be no doubt that when a large proportion of a company's capital is held by persons resident in the neighbourhood of the company's works, those works must be constantly subject to keen supervision. Reports from Chapel House are satisfactory; the increase of output has not hitherto been very rapid, but when the new engines are completed (and we hear that they are in a very forward state), an addition of several hundred tons per day can be at once made to the raisings. The manager is, as usual, selling all the coal raised—and more—at remunerative prices; the shares are quoted at 3¼ to 3¾. Alltami shares are at 4 to 4¼; the prospects of the colliery are stated to be most satisfactory. The output is increasing at Llay Hall, and a fair trade is being done both in coal and clay goods; the shares close at 7 to 9. Cardiff and Swansea Colliery, ½ to 1; New Sharlston, 3¾ to 4¼; Newport Abercarn, 4 to 4¼; Thorp's Gawber, 2¼ to 2¾.

The MINERAL CORPORATION OF GREAT BRITAIN has lately been formed for the purpose of working English mines. The capital—8000 shares of 10*l.* each, fully paid—will be subscribed in France, but the business of the company will be transacted in London, and the registered office is at No. 1, Finch-lane. Of late the attention of French capitalists has been much directed to British lead mining, and the founders of the Mineral Corporation of Great Britain are of opinion that if good and promising setts, which will bear the strictest investigation by mining engineers of repute, can be taken up, or secured on fair terms, there is a wide and very profitable field open to the investor. It is the intention of the Mineral Corporation to vigorously develope such properties as they may be interested in, with the aid of first-class British mine managers, but under the superintendence of mining engineers of the highest standing in France. The founders of the company and their friends have amply shown their confidence in the Corporation by subscribing the capital of 80,000*l.* When the price of lead rises, as in due course of time it must, the properties purchased by the Mineral Corporation will be very much increased in value, and as the Corporation has been formed entirely for the purpose of legitimate mining, and not for that of Stock Exchange speculation, the shareholders may reasonably expect a very fair return upon their capital invested, unencumbered, as it will be, by the heavy premiums so often charged by promoters and others for mining grants. The board will be composed of English and French directors, and to all intents and purposes the company will be an English one, employing foreign capital. The formation of a company to benefit legitimate mining is always a cause of congratulation, and we wish the Mineral Corporation of Great Britain every success in their operations.

Vice-Chancellor Sir Richard Malins has appointed Mr. Frederick B. Smart, of Cannon-street, official liquidator of the Public Supply Association.

QUICK PASSAGE.—The Orient Steam Navigation Company's steamship Lusitania, Captain J. W. Hewison, arrived at Plymouth from Australia at 10 P.M. on Saturday, her dates being Sydney, Feb. 22; Melbourne, March 2; Adelaide, March 6; Aden, March 28; and Port Said, April 3, making a passage of 39 days 6 hours 40 minutes, inclusive of detentions at Aden and Port Said. She had on board 326 passengers, 17 packages of mails, specie value 27,415*l.*, and a general cargo.—[We understand this splendid screw steamship took in her coal at Sydney, from the Lambton Colliery, having made trial of that coal with satisfactory results on her previous remarkable passage home.—ED. *M. J.*]

PROMOTERS SHARES.—In the case of the Ambrose Lake Tin and Copper Mining Company in the Supreme Court of Judicature, on Wednesday, the decision of the Vice-Warden of the Stannaries was appealed from. It appeared that Mr. T. R. Clarke had purchased promoters' shares supposed to have been irregularly issued, and now sought to have his name removed from the list of contributories upon which the Vice-Warden had placed it. This depended upon the question whether the shares had been within the meaning of Section 25 of the Companies Act, 1867, issued to the original allottee, by whom they were transferred to Mr. Clarke, before the contract which provided that the shares should be issued as fully paid-up had been registered as required by Section 25. It appeared (partly by evidence which was not before the Vice-Warden) that something in the nature of an allotment of the shares was made before the registration of the contract, though no formal minute of any resolution to allot was to be found in the company's books. But this allotment was made in the belief that the contract had been registered at Truro, as it was intended that it should be, before the allotment was made. A delay in the registration occurred because the contract had not been sufficiently stamped. When the mistake was discovered all proceedings under the allotment were stopped until the registration of the contract had been made, and the names of the allottees were not entered in the company's register of shareholders, nor even certificates of the shares delivered, until after the contract had been registered. —Their lordships held that under the circumstances the shares had not been issued until after the registration of the contract had enabled the company legally to issue them as fully paid-up, and (reversing the decision of the Vice-Warden) they held that Mr. Clarke was not liable as a contributory, allowing his appeal with costs.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
April 13	South Darren	40	£16 11 6	Panther Lead Company.
15	White Cliff *	20	9 17 6	Burr and Co.
16	Foxdale	110	11 7 0	Nevill, Druce, and Co.

* The fourth sale of lead by this company since starting the new machinery.

BLENDE.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
April 18	West Tankerville	20	£ 3 4 0	Vivian and Sons.

FOR SALE, the WHOLE or PART:—

4 D'ERESBY MOUNT.	£90 0 0	20 GROGWINION	£ 4 0 0
10 D'ERESBY CONSOLS..	12 10 0	100 PARYS MOUNTAIN	0 9 0
30 GORSEDD & MERLL..	4 2 6	25 WHEAL GRENVILLE.	3 15 0

Address, H. WILKINS, 3, Heybourne Villas, Tottenham, N.E.

GEO. G. BLACKWELL,
5, CHAPEL STREET, LIVERPOOL,
PURCHASER OF
MANGANESE, ARSENIC FLUOR-SPAR, WOLFRAM, BLENDE, CALAMINE, CARBONATE and SULPHATE OF BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE, OCHRES AND UMBERS, CHINA CLAY, LEAD ORE FOR POTTERS, TALC, PHOSPHATE OF LIME, &c.

JOHN L. M. FRASER,
BERSE COTTAGE, NEAR WREXHAM,
Fourteen years at the Great Minera Mines.
MINES FAITHFULLY REPORTED ON, AND MINING ACCOUNTS CAREFULLY AUDITED.

ZINC ORES.
ARMAND FALLIZE
INGENIEUR-CIVIL, A LIEGE (BELGIUM),
BUYER
1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.)
2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY

CAPPER PASS AND SON, BRISTOL
PURCHASERS OF
LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, HARD LEAD, BRASS SLAGS AND ASHES, COPPER REGULUS, MATTE, SCORIA, TIN ASHES, TERNE ASHES, &c., and MIXED ORES or REFUSE, containing LEAD, COPPER, TIN, or ANTIMONY.

WALTER ROY AND ALLAN,
184, BUCHANAN STREET, GLASGOW,
EXECUTE COMMISSIONS FOR THE PURCHASE AND SALE OF SCOTCH PIG-IRON WARRANTS.
Sole Agents in Scotland for—
SPEAR AND JACKSON, Etna Steel Works, Sheffield; and JOHN SHAW, Yorkshire Wire Rope Works, Sheffield.
Steel and Steel Tools, Pig and Manufactured Iron, Hemp and Wire Ropes for all purposes, Indiarubber Goods, and Furnishings of every description for Collieries, Founders, Engineers, Saw-millers, &c.

ASBESTOS.
THE BEST MATERIAL for the STEAM JOINTS of LOCOMOTIVES, MARINE and STATIONARY ENGINES BOILERS, &c.
It is manufactured entirely pure, and of the best and strongest qualities, into MILLBOARD, for STEAM, WATER, GAS, and ACID JOINTS,
Further particulars and prices of the undersigned,
SMITH, FLEMING, AND CO.,
17 AND 18, LEADENHALL STREET
LONDON, E.C.

MINERALS WANTED.
ADVERTISER requires REGULAR CONSIGNMENTS of GOOD SULPHUR ORE (PYRITES), either cupreous or non-cupreous; also, GOOD BLENDE, and SOFT MANGANESE ORE. Address, "Pyrites," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

Exhibition Prize Medal—New South Wales, 1877.
AUSTRALIAN TIN—"KANGAROO" BRAND.
Having recently succeeded in REFINING the AUSTRALIAN TIN to the HIGHEST PITCH OF PURITY, the Undersigned is prepared to SUPPLY an article equal to the BEST REFINED ENGLISH.
The uniform assay of the "Kangaroo" brand ranges from 99·70 to 99·90 pure tin. An exhaustive comparative trial of various brands of Australian tin (see annexed report) have proved the
"KANGAROO" BRAND
To be superior to all other Australian tin, and equal to best refined English.
COPY OF REPORT.
"Sydney Galvanising Works, Sydney, Oct. 1, 1875."
"DEAR SIR,—I have much pleasure in stating that I have found the tin smelted at the 'Kangaroo' Tin Smelting Works superior to any other Australian smelted tin I have used in my business up to the present time, and in no way inferior but quite equal to the celebrated 'Lamb and Flag' tin.
This opinion has been arrived at after several carefully executed practical tests, as well as from metallurgical assays.
"I am, dear Sir, yours faithfully,
"S. L. Bensusan, Esq." (Signed) S. ZOLLNER."
Messrs. JOHNSON, MATTHEY, AND CO., the well-known Assayers, report on 24th December, 1875, on a shipment ex Durham, 25 tons of "KANGAROO" TIN, 99·95 per cent. pure tin.
In ordering the "Kangaroo" brand the trade will henceforth ensure uniformity of quality, excellence of texture, and absolute freedom from impurity
"KANGAROO" TIN SMELTING WORKS.
Sydney, September, 1877. S. L. BENSUSAN.

WANTED, a CHINA-CLAY MINE, in full work;—state price, acreage, plant, lease.
Send full particulars, and sample, carriage paid, to WM. FORT and Co., No. 5, Wellington Buildings, South Castle street, Liverpool.

THE CHINA CLAY TRADE.
THE ADVERTISER, who is engaged in the Management of China Clay Works, has exceptional opportunities for the EMPLOYMENT of CAPITAL in this IMPORTANT and PROFITABLE INDUSTRY. Owing to the temporary depression in trade, there are now opportunities for investment which may not occur again for years, and handsome profits are certain.
Address, "C. E.," MINING JOURNAL Office, 26, Fleet-street, London.

TO BE LET for a TERM, THE OLD NORTH BUCKLAND IRON MINES, GEORGE HAM, BARNSTAPLE, DEVON.
For particulars, apply to Mr. JOHN LITSON, Countisbury, Tynmouth, Devon.

OFFERS WANTED for 1400 ENGLISH-AUSTRALIAN GOLD SHARES. Prospects good.
For particulars, address "Alpha," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

SOUTH DARREN.
FOR SALE, FIFTY fully paid-up SHARES, at 40s. per share.—The mine is making a good profit, and will soon do even better.
Address, Mr. C. E. CORNWALL, 73, Balfour-road, Highbury New Park, N.

MINES OF EVERY DESCRIPTION, AT HOME AND ABROAD, CAREFULLY INSPECTED and VALUED.
Address, MARSHALL and Co., St. Antholin's Chambers, 26, Budge-row, Cannon-street, London, E.C.

THE "INVESTORS' GAZETTE."
Published EVERY FRIDAY EVENING. Post free for 3 months, 2s. 6d.
The "INVESTORS' GAZETTE" contains a *resumé*, as brief and concise as posble, of the prices on the Stock Exchange and Mining Market for the week, and latest intelligence from Mines in all parts of the world.
The "INVESTORS' GAZETTE" gives the lowest net prices at which MINING and OTHER SHARES can be purchased.
Edited and published by—
ALFRED E. COOKE, 76, OLD BROAD STREET, LONDON

MR. HENRY SEWELL, MINING ENGINEER AND METALLURGIST.
Twenty-three years' practical experience in Chile, Peru, Mexico, Germany, Hungary, Spain, Sicily, England—five years in Utah, Nevada, and California
SPECIALITIES.—COPPER MINING: The Smelting of Copper and Argentiferous Copper Ores, with wood fuel or coal in reverberatory furnaces, into matte of 70 per cent., the silver increasing five times. Ten years' practical experience in Chile.—The Reduction of Native Sulphur Ores, as practiced in Sicily, without fuel or iron pans. Six years' practical experience in Spain.
Mining Agent for the Chilian Government on this coast.
330, PINE STREET, SAN FRANCISCO (ROOM 4).

MR. WILLIAM SALMON, F.G.S., 22, QUEEN STREET, ULVERSTON,
MINING AND COMMISSION AGENT AND ACCOUNTANT.
SEVERAL VALUABLE IRON ORE, SLATE and LEAD ROYALTIES, TO DISPOSE OF.

MR. TIMOTHY HUGHES,
MINING AGENT AND SHAREDEALER,
59, SEEL STREET, LIVERPOOL.
Reliable information given respecting Welsh and Manx Mines.

PRINCE PATRICK MINE.
New Issue of 12,000 Preference Shares.
T. H. strongly recommends his friends and the public to secure an interest at once in this very valuable mine while the shares can be obtained under such favourable circumstances.
See report in Supplement to *Mining Journal*, March 9th, also advertisement in Journal of March 16th.

MR. J. S. MERRY,
ASSAYER AND ANALYTICAL CHEMIST,
SWANSEA.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *filed* on receipt; it then forms an accumulating useful work of reference.

MINING IN IRELAND.—I hope to resume my remarks on the Mineral Resources of Ireland after awhile, but for the present am too much occupied with other matters. However, as I am making a professional tour through a considerable portion of this country, my notes on the above subject will be interesting. I shall be at this address for the next week; and if any of your numerous readers interested in Irish mining desire to secure my services I am open to proceed to any part of the Island.—THOMAS TONKIN, Mining Engineer: *Kingabella Mines, Carrageline, Cork, April* 17.

NEW QUEBRADA.—Being a holder of 200 shares in the New Quebrada Company, I think it high time that a meeting should at once be called, in order that the shareholders may as soon as possible be made acquainted with the affairs of the company.—A. H. H.

SIR,—In the valuable notice, in last week's Journal, of the lectures on Coal Mining, now being delivered by me, there was a little mistake in the letters following my name. You printed "M.I.C.E."—it should have been "M.I.M.E." I am not a member of the Institution of Civil Engineers, but of the Institution of Mechanical Engineers. The favour of your insertion of this letter will oblige—ARNOLD LUPTON: *Bagillt, North Wales, April* 18.

The article on "The Desert of Atacama, its Geology and Mineral Products," will appear in next week's Journal.

WET COPPER PROCESS.—Can any correspondent of the Journal inform me where we can get information of the wet process for extracting copper from ore, especially that commercially introduced in Spain?—F. H. N.

GREEN HURTH.—It having been erroneously stated that this company had paid a dividend of 50s. at the annual meeting in February, we are requested to state that this is a mistake; the last dividend was 3s. per share, paid Aug. 1, 1877.

THE RICHMOND MINING COMPANY.—I have looked in vain in last week's Journal for any reference to my question regarding the claim for $2,000,000 about to be preferred against the Richmond by the Eureka Company. If there be any truth in the rumour someone in authority should let us shareholders have the earliest information through your valued Journal.—SHAREHOLDER.

Received,—"Bournonite" (Toronto): Next week—"L. D." (Dublin): Write to a broker—"R. B." (Leeds)—"Inquirer": We could not publish the latter "Save me from my friends" without the signature of the writer being appended—"W. A." (Glasgow)—"R. S." (Truro)—"Reminiscences—No. I." shall appear next week—"One Interested in Mining" (East Van)—A. Francis (Goginan)—"R. D."—"Shareholder" (North Wales)—A. Williams (Cardiganshire Mines): Next week—"A Cousin Jack" (Kit Hill Tunnel): Next week—"W. E. J." (False Prices)—"Shareholder" (Holmbush).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, APRIL 20, 1878.

THE LINCOLNSHIRE IRON TRADE.

From its comparatively isolated position less is heard about Lincolnshire iron than that of any other part of the kingdom. Yet in it there are no less than 21 blast-furnaces, all in view of each other, whilst immense quantities of ironstone are raised, a good deal of which is sent by rail to distant parts of the country. About 20 miles by railway from Doncaster, on a line that conveys comparatively few passengers, is the centre of the iron trade—Frodingham. It was here that, about 20 years ago, the ironstone was first discovered on the estate of Mr. R. WINN, M.P., and found to be superior to that of Cleveland in the percentage of metallic iron. But it also had another great advantage over some other ores, for it contained even more lime than was required for smelting it. The area of the ironstone field at Frodingham is very extensive, and was formerly of little value, for the ground was cold and boggy, and the resort of coots and conies, and occasionally of wild ducks. In this flat and unprepossessing piece of country there is now a large and striving population, and the district is a teeming hive of human industry. Of ironstone upwards of 50,000 tons a month are raised, whilst the make of pig will be at the rate of about 18,000 tons per month. The largest works are those known as the Trent, having seven furnaces, only three of which are at present at work. They were owned by Mr. W. H. DAWES, who died on the 11th inst. Messrs. CLIFF have four furnaces, two being in blast. The North Lincolnshire and the Appleby Company have each two furnaces, all in blast, whilst two belonging to the Redbourne Company are standing. The Lincolnshire Smelting Company have had two furnaces standing for about nine months, and one of these was put in blast on Tuesday last, in the presence of a large company, under the superintendence of Mr. JOHN ROSEBY, of Haverholme House, near Brigg, one of the directors, and the agent of Mr. WINN. To Mr. ROSEBY is due the credit of opening out and developing the mineral wealth of North Lincolnshire, and making known the value of the ore and pig. The Lincolnshire pig, it may be said, has a very good reputation, and some of the stone gives as much as 50 per cent. of metallic iron. At Appleby, the works at which are under the management of Mr. W. ROSEBY, the chief owner, some excellent iron is made, and large quantities are sent into Staffordshire.

On the occasion of the putting in blast the furnaces of the Lincolnshire Smelting Company there was present, besides Mr. and Mrs. ROSEBY, Mr. W. COOKE—COOKE and Co. (Limited), Sheffield—Mr. SMITH, Bilston; Mr. W. ROSEBY, Mr. BERCLAM, and many others. The proceedings were of an interesting character throughout. About 11 o'clock, all being ready, Mrs. ROSEBY said she had been called upon to turn on the blast, and had great pleasure in doing so. Hitherto the works had been unprofitable, but she hoped and believed there would now be a great change for the better, and that the North Lincolnshire Smelting Company would be a great success. After the ceremony was over the party proceeded to the Bell Hotel, Scunthorpe, some by the locomotives of the companies, where an excellent dinner was provided, the chair being occupied by Mr. J. ROSEBY. After the usual loyal toasts, Mr. COOKE said he must congratulate the Smelting Company on the spirit shown in putting one of their furnaces in blast at the present time when trade was so very indifferent. But having come to the decision of resuming work he thought it would have been advisable to have put both furnaces in blast. Having shown such pluck the company undoubtedly deserved to succeed. He had, therefore, great pleasure in proposing "Success to the North Lincolnshire Iron Smelting Company." The Chairman, in acknowledging the toast, said the past history of the company was not such as he could boast of, but looking at the present state of the iron trade throughout the country, and the evident signs of improvement, he had advised his co-directors to put the furnace in blast, which had been thoroughly repaired, believing, as he did, that it would pay them to do so even with the present price of iron. He took a hopeful view of the future, and he believed with most others connected with the trade that they had seen the worst, and might now look forward with some confidence to a better state of things.

With respect to a remark made by Mr. COOKE, he might say that it was intended to put the second furnace in blast when the necessary repairs were completed. When that was done he believed the shareholders of the company would have no reason for complaint, but, on the contrary, would be benefited by the action of the directors. Mr. ROSEBY then proposed the health of the manager, Mr. BERCLAM, who briefly replied, remarking that he would do all that lay in his power to make the work successful. The health of Mr. and Mrs. ROSEBY and family was then proposed, and was received most cordially. Mr. ROSEBY returned thanks, remarking that himself and Mrs. ROSEBY took a good deal of interest in the success of the works whilst his son was a shareholder, and no doubt looked forward to receive some return for his investment. He believed he would not be disappointed, for he (Mr. ROSEBY) had every faith in the company. Mr. W. ROSEBY also returned thanks, and urged the necessity or the ironmasters of Lincolnshire acting together. Union, he said, would be far more beneficial to them than competing with each other in the various markets. They should agree among themselves as to the price to be charged for their iron. There should be defined qualities of pig and defined prices, and then the position of the Lincolnshire iron makers would be considerably better than it had hitherto been. Other speeches were made, and the party broke up in time to go by railway to Doncaster and the South. We may say that the workmen were not forgotten, for through the liberality of Mr. ROSEBY they were well catered for, and in flowing bumpers drank success to the working of the furnace and the Lincolnshire Smelting Company.

NITROUS EXPLOSIVES—FATAL ACCIDENT.

A fatal accident, and one that might have been attended with a fearful loss of life, has just taken place in the Holywell district, North Wales. The following, which is we believe the fullest report of it which has appeared, is taken from the Liverpool Courier:—

FATAL BLASTING ACCIDENT—FOURTEEN MEN INJURED.—An accident of a very peculiar character, with fatal results, occurred on Wednesday evening in the Deep Level Mine, Halkyn, where the Diamond Rock-Boring Company are driving a tunnel in connection with the Halkyn District Mines drainage. A trial of guncotton for blasting purposes, manufactured by the Stowmarket Guncotton Company, was being made, and after the explosion Mr. Campbell, Mr. Thornton, and Mr. Piercy, the managers, went up to the face of the driving to examine the effects of the blast, accompanied by about a dozen men. Mr. Campbell at once said he felt strange, and they had better go back. They turned to do so, but had not gone many yards before they were overcome by the noxious fumes which filled the level, and they fell to the ground insensible. A boy named Joseph Jones, who was returning to the surface, gave the alarm, and assistance was at once sent down. Mr. Thornton, who had only been in the district a few days, was found lying dead across another man. The injured managers and men were speedily taken to the surface, and they appeared to be entirely bereft of reason for a considerable time, but under the care of Dr. Hamlet Davies, of Holywell, they have, with one or two exceptions, recovered.

The accident took place on Wednesday the 10th inst., and the enquiry was originally appointed to be held on the Wednesday following, but to suit the convenience of the local Inspector of Mines it was held on Friday, the 12th, being two days sooner, and was conducted in such a hurry, and the enquiry was so limited, that the whole proceedings occupied less than an hour. It is well known that all nitrous explosives give off a certain quantity of noxious fumes, and of these guncotton, when properly manufactured, has hitherto been looked upon as one of the least objectionable. It is consequently most startling to find such disastrous and dangerous results from its use. We understand that the several charges which were fired contained together about 12 lbs., and it is scarcely credible that the explosion of this quantity can have suffocated, or rendered insensible, the whole of the 15 men in the workings. The question, therefore, arises—Did the whole of guncotton explode or not? There can be no doubt that if a considerable quantity of the guncotton did not explode, but only smouldered and burnt away, the fumes would be quite sufficient to poison the whole of the men, and this may, perhaps, account for what has taken place. Was this the case, and was the guncotton of the purest quality? Was it dry or damp? What kind of detonators were used? And will damp guncotton, if fired with the ordinary detonators used for exploding dynamite and similar explosives, explode or only smoulder and burn away, giving out noxious fumes? The verdict on the inquest was simply "Accidental Death from Suffocation," but the evidence, as far as it is known, was altogether silent on the several questions above enumerated, although they are of the greatest consequence to all persons engaged in undertakings where blasting operations have to be conducted underground or in confined situations.

The 65th section of the Explosives Act requires that four days' notice shall be given to the Home Secretary before any inquest is closed, that he may have the opportunity of appointing an Inspector of Explosives to attend and see that a full and complete enquiry into the causes of the accident is properly conducted, and that the provisions of the Explosives Act have been duly observed. The Inspector of Mines appears on the present occasion to have induced the Coroner to dispense with this provision of the Act, and no Inspector of Explosives appears to have been present. The absence of an Inspector of Explosives, and of a fuller and more complete enquiry, is the more to be regretted in consequence of the large quantities of guncotton which are now being used by Government for naval and military purposes, and if such fearful results are obtained from a single explosion in a tunnel the question naturally arises what would be the effect on board a man-of-war or Government transport filled with troops? The question is so very important in a national point of view that no doubt some further enquiry and numerous exhaustive experiments must be undertaken by the Government, and this is rendered the more necessary from the very high character which the Stowmarket guncotton has hitherto, and we believe deservedly, acquired for purity of manufacture, and which makes the accident more unaccountable and startling to the users of guncotton and those acquainted with the subject.

OUR COAL ABROAD.

The gradual advance of this not particularly cheerful year enables us to give some further information with reference to the course of our export coal trade. In the first three months of this year the direct exports of coal from our shores (the expression "coal" including also coke, cinders, and patent fuel) amounted to 3,199,735 tons, as compared with 2,950,636 tons in the corresponding period of 1877, and 3,165,404 tons in the corresponding period of 1876. The quantities of coal, &c., shipped for the use of steamers engaged in the foreign trade were 901,876 tons, 833,973 tons, and 801,670 tons respectively. In one way or other coal was accordingly exported from this country in the first three months of 1878 to the extent of 4,101,611 tons, as compared with 3,784,609 tons in the corresponding period of 1877, and 3,967,074 tons in the corresponding period of 1876. Our coal exports are thus moving on this year at the rate of 16,406,404 tons per annum. For the whole of 1877 the corresponding exports were 19,020,380 tons, but it should be remarked that in the winter months the exports of coal as well as of other commodities are somewhat reduced by the severity of the season. The closing of the Baltic by ice, of course, almost stops the delivery of English coal to Russia, and this tells upon any calculation as to the aggregate exports of a whole year based upon the first quarter of it; when we have the official returns for April, May, and June we shall be enabled to speak with greater precision as to our probable coal exports for the whole of this year, but there is every probability that the aggregate exports for the whole of 1878 will exhibit some progress when contrasted with the corresponding figures for 1877, 1876, and 1875.

The disturbance of the ordinary course of commerce in the Levant has had the effect of reducing the deliveries of English coal this year to southern Russian ports, and our exports of coal to Russia accordingly declined in the first three months of this year to 49,861 tons, as compared with 68,332 tons in the corresponding period of 1877, and 82,363 tons in the corresponding period of 1876. The deliveries to France have, however, made some progress this year, having amounted to March 31 to 807,236 tons, as compared with 706,487 tons in the first quarter of 1877, and 861,250 tons in the first quarter of 1876. The French have thus been using our coal this year at the astonishing rate of 3,228,944 tons per annum. We say "astonishing rate" because we can remember when the French made a great fuss about a consumption of 1,000,000 tons of our coal annually. The aggregate force of the steam-engines at work in France is now computed at 1,500,000-horse power, and of course such a force as this cannot be produced without a considerable outlay for coal. Moreover, steam-power has a continual tendency to grow among the French. Every year witnesses the establishment of more French railways, more French steamers, and more French manufactories. It follows that although the production of coal increases, upon the whole, among the French, it is still outstripped by the consumption, and our neighbours are compelled, in consequence, to import more and more foreign coal. Spain, again, is a by no means unimportant consumer of our coal. In the first quarter of each of the last three years Spain took our coal to the extent of 222,756 tons, 248,851 tons, and 188,430 tons respectively. Spain has thus been absorbing our coal this year at the rate of 891,024 tons per annum, although at some points upon the Spanish soil coal is now being worked with such energy that the Spanish Minister of Marine talks of using only Spanish coal in future in the Spanish navy. Vast deposits of coal are said to exist in Catalonia, but they are almost entirely unworked at present, and whatever the future may have in store for Spanish coal mining, the great tangible fact of the present day is that Spain is content to use our coal to the extent of nearly 1,000,000 tons annually. Italy, again, is a considerable consumer of English coal, and appears to be using it to a larger extent than ever.

BORING AND DRILLING MACHINES.

[FROM A CORRESPONDENT.]

The value of machinery for extensive excavations and borings has long been recognised, yet we do not think its importance is estimated in this country to the extent that might be expected. Many of our mine owners and others are opposed to changes, and so move along on the old lines, and do not go beyond the power of manual force for the performance of work of a heavy character that could be far more efficiently and economically done by machinery. In this respect we have been behind many of our continental competitors, who have long been successfully operating with boring machines, aided by compressed air, yet it cannot be said that they have surpassed us as to the instruments they have invented, seeing that many English boring and drilling machines have been purchased in preference to all others for the heaviest work that could possibly be found for them in France, Italy, and other countries. The old system of boring with rods, so slow and tedious, is still met with sometimes, whilst there are rock drills and borers that would do at least ten times as much work in a given time, and at a very much less cost. This is certainly anything but satisfactory, seeing that there are so many drills and boring machines that have been tested in every possible way, and with every desired result. Drills that have been in operation in the St. Gothard Tunnel, in our mines and quarries, that have perforated the hardest rocks, ironstone, coal, slate, &c., have shown their capabilities for such work, and have clearly demonstrated that they are far cheaper than the old methods to which so many persons still tenaciously cling.

In mines where it is dangerous to use powder, there is another instrument which we cannot altogether overlook in noticing those of a larger calibre. We allude to the rock or coal perforator; this is used for the purpose of perforating the roof or other material in a mine, preparatory to the introduction of a wedge, or it may be of powder where such can be safely used. It will drill a hole in five or six minutes, which by the ordinary process would occupy at least an hour. With respect, however, to the heavier machines, worked by compressed air, they have certainly not been patronised to anything like the extent they deserve, but in this respect the makers are no worse off than the inventors of coal-cutting machinery, who have long been complaining of what they term the apathy of colliery owners in not moving faster in the direction of scientific appliances, which means economy in the working of minerals. Some of the hand drills we have seen in operation, and their expedition and simplicity, alone should be sufficient to ensure their more general use. But now not only are ordinary bore-holes made, but shafts can be effectually sunk, whilst stone drifts can be effectually driven. Seeing that compressed air is now being extensively adopted for underground haulage purposes in mines, there certainly appears to be a better chance for drills, seeing that the motive power is already provided. As we have before stated, on the Continent machinery in connection with mines is being largely introduced, and is receiving a good deal of attention.

For several years past, at the Marie Colliery of JOHN COCKERILL Company, Seraing, several machines worked by compressed air have been tested, and with varying degrees of success. One of these was on SOMMEILLER'S system, and was tolerably successful, and this we believe was followed by the machines of OSTERHAMP, SACH, and HAUPT, but they did not succeed. The difficulties in connection with the invention were apparent, and they were overcome by an invention of Messrs. DUBOIS and FRANCOIS. In this machine the drill is held in connection with a piston rod, the piston being free to move about in a metal cylinder; a valve chest is fitted to the cylinder in which a slide valve is moved by the two pistons. The compressed air, on entering the valve chest, acts upon the pistons, the movement produced being towards the right, so that the port is opened and the drills driven against the rock or other mineral. By the action the drill is violently thrust forward, but returns more slowly, an essential in mechanical boring. The stroke of the piston can be varied according to what is required, and the whole arrangement is comparatively simple, whilst the perforators work in any position. The machine can be worked at a comparatively low pressure, from 2 to 2½ atmospheres, which is considered of no ordinary importance when the compressors are driven by steam. But some of our own English drills have been worked most effectually at a much lower pressure. For driving headings in mines most of our drilling machines are particularly well adapted, although they are not much in request for that purpose, not so much, we believe, as in France or Belgium. Such speaks well for the support given to inventors in those countries by mine owners, who have the great advantage over us of an abundance of cheap labour. Drilling and boring machines, it may also be said, as a rule, do not require the services of skilled persons to manage them, but can be managed by an ordinary workman or miner after a few days' practice. In addition to this there is the advantage of quick work at a cost far below what it might be possible for any person to effect by hand.

A fair number of machines are to be found in some of the metalliferous mines of Cornwall, as well as in the hematite mines of Lancashire and Cumberland, but they do not seem as yet to have made any headway with our colliery owners. At the present time, however, when coal is so very cheap, and competition in all markets so very keen, the application of economical appliances appears to be an absolute necessity, and to our thinking the introduction of machinery for the purpose of driving or tunnelling, or even in the cutting of coal, could not fail to be of the greatest advantage. This more especially will be the case in mines in which compressed air is already the motive power in connection with underground working, for it is the safest and most economical power that can be adopted for mining purposes, and during the last two or three years has been put down at a great many places.

NEW ROTARY ROCK DRILL.—In another column will be found the translation of a paper read at the Frieberg Mining Institute descriptive of a new rock-drill invented by Mr. A. BRANDT, and which has been tried in the Sonnenstein Tunnel of the Salzkammergut Railway. The machine is in every respect similar to the diamond drill, except that the crown is formed of hardened steel, and shaped into teeth, which are used to cut the rock instead of diamonds. The new drill does not cut a core like the diamond drill, and is worked by water instead of compressed air or steam. The ground upon which it was tried appears to have been comparatively easy for working, since it is stated that it could be blasted with 28 lbs. of dynamite per cubic metre, as compared with 88 lbs. per cubic metre at St. Gothard. The machine works by abrasion and not by percussion. The borer makes five revolutions per minute, with a consumption of little more than three cubic feet of water, and with a water pressure of 80 atmospheres (1200 lbs. on the square inch); the machine is equal to three horse-power effective. It is stated that when the borer makes five revolutions per minute, and when the advance at each revolution is 0·9 centimetres, then nearly 25 cubic inches of stone per minute will be pulverised. The borer is blunted, and has to be exchanged every 1 ft. driven, but it is estimated that a 40-inch hole may be put in in about 35 minutes. For driving in soft ground, and where ample water power is available, the new drill promises to be very useful.

RECEPTION OF CORNISH MINERS IN BOHEMIA.—The Bohemian Tin Mining Company (Limited), recently formed in England for working a valuable mine at Abertham, in Bohemia, sent from Cornwall last month a large staff of workmen for the exploitation of the tin ore on their property. The party were most cordially received by the inhabitants, indicating that the jealousy of foreign workmen exhibited in some parts of England has no existence in Bohemia. On the arrival of the party at Abertham they were met by the Burgomaster, the parish priest, and town councillors, who gave the strangers a hearty welcome, and soon after a band of music made its appearance, and serenaded the party in front of the hotel at which they were staying. On nearing the mine the party were met

by another band of music and the town council of Stengstererben, who greeted them most kindly and cordially. Triumphal arches had been erected in honour of the occasion, and with banners flying and music playing the Cornishmen were received at the scene of their future labours with as much *eclat* as if they had been princes of the blood. Evidently the Bohemian miners have a totally different conception of trade rivalry from that entertained by the workmen of our own enlightened country, whose reception of fellow but foreign labourers is, as a rule, a great deal too warm to be pleasant.

AMERICAN COAL.—Advices received from New York state that the Philadelphia and Reading Railroad, with the view of widening the market for anthracite coal, has dispatched Mr. E. A. Quintand, of the Philadelphia and Reading Coal and Iron Company, to Europe, his immediate purpose being to take the general charge of the Reading Company's exhibit at the Paris Exhibition. It is expected that a fine display will be made of anthracite coal from the Schuylkill.

GOLD FROM NEW ZEALAND.—The export of gold from New Zealand in 1877 is stated at 369,012 ozs., of the value of 1,484,574*l*. This quantity is more by 46,996 ozs. than the export in the preceding year.

COALS FOR RUSSIA.—An order was received yesterday in Sunderland for 100,000 tons of coal to be supplied immediately to the Russian Government. The coals are to be shipped in fast steamers, and sent to the Baltic ports.

REPORT FROM CORNWALL.

April 18.—There has been a slight unofficial improvement in the condition of the tin market, although matters looked so black last week that a further decrease was apprehended. Whether this will develope into an official advance remains to be seen, but in face of the dulness which always accompanies a holiday season the probability is that for some days at least there will be no change of importance. At the same time it should be understood that there is no reason to regard the outlook as at all less favourable for permanent prospects than it was when last we wrote. There may be, however, an additional reason for temporary dulness in the fact that during the adjournment of Parliament business is more likely to be made the prey of disquieting rumours than when the official means of obtaining information which Parliament affords exist.

Some little interest is being excited by the project to utilise the vast heaps of mine burrows in some parts of West Cornwall by treating them in the wet way, but there would be a good deal more if hitherto the projects of that character which have been attempted to be carried out had not been financial failures. We say financial failures advisedly, for in the most gigantic of these experiments there was very good ground to believe that practically a very fair amount of success was achieved, and that only unfortuitous financing brought the undertaking to an untimely end. That eventually the wet treatment of low produce and mixed ores will succeed in Cornwall, as it has elsewhere, we are thoroughly convinced, and the history of the boring machine appears to be repeating itself. Machine boring was a proved success out of Cornwall for many years before it was efficiently applied in this county. Now, however, apart from mining proper, the idea seems to be gaining ground that the immense heaps of mineralised stuff around the shafts in the abandoned setts will, at no distant period, be utilised. The chief argument is that the stuff is here ready to hand, which will require no pumping charges or labour costs to raise, and that, though the percentage of mineral is low, it is certainly enough to admit of a trial. Whether the calculations made are correct experiment only will decide. There is not the risk which the opening up a new mine implies, and, on the other hand, there is not that chance of a good discovery which animates so many Cornish miners and adventurers. It is, however, generally admitted that comparatively small permanent profits are often better than discoveries which last only for a short time. As was stated last week, works of this kind will very shortly be commenced in the parish of Gwennap, where many millions of tons of mineralised refuse may easily be obtained; and as the mines in this district have returned immense quantities of mineral in former days, the burrows can scarcely fail to yield suitable stuff for the proposed treatment. Anything that will provide labour in West Cornwall in the present depressed condition of mining is worthy of a trial, for it is far better to employ men to work for fair, or even low, wages than to run the risk of pauperising them by supporting them in idleness on public charities. There is no real charity in doling out relief, but there is true charity and the wisest economy in enabling men to support themselves and those dependent upon them.

An illustration of the way in which false stories as to the amount of wages paid to miners are got up and propagated comes from the Far West. A Botallack miner had the impudence to come before the board of guardians a fortnight ago and ask to be relieved of a payment of 3s. a week for his infirm wife, now in the workhouse. He said his earnings were 3*l*. a month. An active smart-looking miner, in the prime of life, this statement was doubted. The fact is he had received on an average 3*l*. 19s. 9d. a month for the past six months. However, there is no doubt that in many cases wages are very low—unavoidably so.

Some months since a very interesting series of experiments with M. Camille Espir's explosive powder were made at Oreston, near Plymouth. It is now intended to establish a manufactory in the same locality, and the magistrates at the Plympton Sessions have this week granted a license for the establishment of the works to Capt. Fairholm and Co. In the course of the proceedings it was stated that the compound consisted solely of three ingredients—sawdust, sulphur, and nitrate of soda. They presented in themselves no danger whatever, and thus differed materially from some other ingredients used for gunpowder and other explosives. Espir's explosive had been analysed by the chemist appointed by the Secretary of State, and had been favourably reported on, and classed in the "nitrate mixture"—the least dangerous class of explosives, its danger quality having been set forth in the reports of Major Majendie, the inspector of explosives, as being merely equal to half that of ordinary gunpowder. The process of mixing the ingredients, each of which was in itself perfectly harmless, offered no danger whatever, as whilst under it the mixture was so saturated with water as to be perfectly uninflammable; and should it happen to take fire after it has been dried it burnt without exploding, and could be at once extinguished by pouring water upon it. No better proof of the peculiar immunity of this explosive from the ordinary dangers of an explosive mixture could be given than by citing a case which occurred a short time since in Berner's street, London. Whilst the inventor was engaged in re-drying, over an ordinary open fireplace, some powder which he thought had been affected by being kept in a damp cellar, a spark from the grate set fire to about 15 lbs. of the dry explosive contained in a tin box next the fender. M. Espir quickly reversed the tin to check the flames; but the tin having become unsound the powder simply burnt itself out, creating only a considerable smoke. The powder would not explode so long as it was exposed to atmospheric air. When used for blasting purposes, and then it was found to be very powerful, the atmospheric air was excluded. It did not act as gunpowder, as it merely lifted a large piece of rock out from its primeval position, instead of shattering it in pieces.

It is stated that Mr. Reynolds, of Trevenson, who brought the action at the last assizes against the East Pool adventurers for damage alleged to have been caused by arsenical fumes, is in consequence of the failure of that action about to leave the country.

There has been a fatal boiler explosion at West Tolgus, which certainly comes under the head of preventable, and should teach a lesson. Dr. Foster, in reviewing the evidence, said that in his opinion the collapse of the tube was caused by shortness of water, and he expected that that shortness was due to one boiler having robbed the others from a chip or stone getting into the back pressure valve, and preventing its closing. He thought that the boiler was weak. The flue when perfectly new and circular would have collapsed at a pressure of 71½ lbs., and it was not right to work such a boiler at 36 lbs.; say half the maximum strength when new. The feed was brought in too low—20 in. below the water line. If the feed were delivered only an inch or two below the lowest water level there would not be the danger of one boiler being drained by another. A fusible plug would, he thought have prevented the accident, and he was astonished that persons using boilers did not adopt all appliances likely to prevent explosions. In conclusion, he believed that if the boiler had been stronger and provided with all the appliances for preventing accidents the deceased would still be alive. However, there was no escaping the conclusion that the poor fellow was mistaken, and did not sufficiently examine the feed. The jury found "That deceased died from scalding from the explosion of a boiler caused by shortness of water, and the jury regret the mining company did not use a fusible plug, which would have prevented the accident, and they are of opinion the consulting engineer should not have allowed the boiler to be subjected to a pressure of 36 lbs. per square inch, which was half the maximum collapsing pressure of the tube when perfectly new."

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

April 18.—Negociations opened at the Quarterly Meetings last week between buyers and makers of alike pig and finished iron were on 'Change yesterday in Wolverhampton, and this afternoon in Birmingham, closed in a fair number of cases. Still the amount of business actually transacted cannot be characterised as on the whole large. Buyers had the best of the bargaining, although prices remained upon the basis of 8*l*. 10s. for marked bars and 9*l*. 2s. 6d. for Round Oak brands. Any quantity of capital bars could, however, have been got for 8*l*. and less per ton, and quotations varied according to quality down to 6*l*. I have reason to know that sales are taking place at even considerably below 6*l*. First-class Shropshire and Staffordshire firms demanded 5*l*. for their all-mine cold-blast pigs, and 4*l*. for hot-blast ditto, and they were strong at such rates. But offers were numerous to supply hot-blast iron of this description at 3*l*. 17s. 6d. Cinder qualities range down to 42s. 6d. At 3*l*. 10s. short weight good forge hematites were abundant. The Coal Trade, judged by yesterday and to-day's markets, might be in a worse position; at the same time, there is no denying the fact that owners could reasonably wish to see much better times. Furnace coal is unaltered, with 9s. per ton as its crucial price, and forge coal remains officially at from 7s. 6d. to 8s. These prices, however, are mostly only nominal, as contracts are filled at much under these rates. The house coal trade is dull, for the usual effect of the advance of the seasons is just now felt by owners.

Great caution is displayed on the local stock exchanges touching negociations in shares of coal and iron concerns. The shares of the Spon Lane Colliery have sold at 5½ dis., and buyers now stand at 5 dis., but with the transaction recorded before them buyers will not enter the market at this figure. The 10*l*. shares of John Bagnall and Sons have changed hands at 2*l*. 2s. 6d.; still sellers are at date asking for 7s. 6d. more than this. Holders in the Cannock and Huntington Colliery quote 8½ dis., in the Hamstead Colliery 6 dis., in the Walsall Wood Colliery 2½ dis., in the Darlaston Coal and Iron Company 8 dis., in the Pelsall Coal and Iron Company at 11 dis., and in the Chillington Iron Company at 7 dis.; but for none of these properties are there any buyers at the rates mentioned. 3*l*. 12s. 6d. premium would willingly be given for the shares of the Sandwell Park Colliery, but holders have faith in better times coming, and remain for the moment out of the market.

Regret is general in iron trade circles hereabouts at the death, at 74 years of age, of Mr. W. H. Dawes, the senior partner in the firm of William Dawes and Sons, of Bromford. The house of which the deceased gentleman was the head is one of the oldest and most esteemed in South Staffordshire, and enjoyed a high reputation for its nail rods and hoop iron. Mr. Dawes was a man of more than average culture and refinement among South Staffordshire ironmasters, which fact earned for him the denomination of "the gentleman ironmaster." The character of the funeral, which took place on Monday, showed the respect in which Mr. Dawes was held for miles around.

At West Bromwich a "doggy" employed by the Barbors Field Colliery Company has been fined in a mitigated penalty, with the alternative of imprisonment, for neglecting to report the existence of gas in one of the pits in January last.

In North Staffordshire the holding of the Quarterly Meetings has given a fillip to business in most departments. The improvement is not, however, at all marked. It may become more apparent in a week or two. Prices continue very low. Crown bars are quoted 6*l*. 15s., and best 7*l*. 5s. Makers' quotation for plates is 8*l*. 15s. delivered at Manchester. These rates are for well-known brands; inferior descriptions are offered for less. Pottery mine (calcined ironstone) has been advanced 1s. per ton.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

April 17.—The case of Sadler *v.* Whalley, which occupied the Court of Chancery for some time recently, and which was referred to a Liverpool jury, was brought before Lord Justice Brett at the Liverpool Assizes last week. The action related to the recovery of the lease of the Chwarele Brick and Tile Works, near Ruabon. The case was agreed to be settled by arbitration, both parties withdrawing the strong imputations made on each other's character. The Gold Company (of Merionethshire), referred to in last week's report, has also been before the Vice-Chancellor, who commented very strongly on the proceedings of its promoters as being calculated, if not intended, to defraud. The directors had the power, which they used, to give the unallotted shares away. The concern was written up, and the shares, of which there were 100,000, rose as high as 2*l*. 10s. The plaintiff, who on the report of the engineer had purchased shares, contended that the mine had really no existence as such, the promoters having only tested bits of the soil. It is pleasant to see that the Clogau Mine has produced 57 ozs. of gold from 773 lbs. of ore. The latter must, of course, be selected ore, otherwise the fortunes of the company would be made. The rise in the value of D'Eresby Mountain Lead Mine 20*l*. shares, from 20*l*. last August and 60*l*. in January, to 100*l*. in April, is a noticeable fact. If the rise really represents the increased value of the mine, it is a matter for congratulation; but from a comparison of the reports of the various dates it is difficult to see how the mine can be hoped to pay a fair mining interest on shares that cost five times their original price. These shares now actually stand in the same relation to their original cost as do those of the Van, whose dividends last year were 42,000*l*. As a rule, the shares of non-dividend lead mines in Carnarvonshire, Cardigan, and Montgomery are now quoted at a premium, while those of Salop, Denbigh, and Flint are at a discount. The difference is, however, hardly to be found in the inferiority of the mines in these three last counties.

A sad accident has occurred at the Halkyn Deep Level Mine in the latter county. A trial of guncotton had been made, and the managers had gone up to the forebreast of the level to ascertain the result, when one of them, Mr. Campbell, feeling faint, suggested a retreat as the air was bad. The retreat was made, but several of the party were overcome and fell down. A boy ran for help, which speedily arrived, but not before one of the number, Mr. Thornton, was dead. There is no doubt but that, as your correspondent "Mining Engineer" wrote last week, the driving of the Deep Level will be a great boon to many of the mines, Rhosesmor included, where the lead-bearing measures lie deep; but many of the mines lying to the west and nearer the outcrop of the limestone will hardly be affected by it. If the cavern found in St. Patrick Mine were full of ore it would be, as he puts it, a "never-failing indication of success," but it is difficult to see how an empty cavern is an indication of a large body of ore any more than an empty house is an indication of a good dinner. It is to be hoped this mine possesses better indications of success than this.

The Cwm Llanarch Silver-Lead Mine, near Bettws-y-Coed, which was started in August last, and whose shares were soon quoted at a premium, was the subject of a trial before Baron Huddleston on the 3rd inst. Mr. Brown, a London printer, brought an action against Mr. John Davies, of the Cardiff Smokeless Steam Coal Company, for the amount due to him for printing circulars, maps, and prospectuses. Mr. Davies repudiated the debt, which he said was incurred solely by Mr. Spargo, his partner in the venture, and with whom he was to share the profits arising from the sale of the mine. He further contended that a good part of the amount was for printing Mr. Spargo's "Mining Atlas." The Court held Mr. Davies liable for 24*l*. 4s. 6d., the amount of the bill pertaining to Cwm Llanarch, Mr. Spargo having become a bankrupt.

A step in advance has been taken at the South Snowdon Slate Quarries, near Beddgelert, a traction engine with two wagons being now used to convey the slates to Portmadoc. Arrangements have also been made by which the engines and wagons can be taken direct to the fine yard and quay of this company. The Festiniog Railway formally blocked the way, so that the slates had to be unloaded from the road wagons into railway trucks, and then run to the quay. It would be a great boon for the valley, whose earthworks were partly made twelve years ago, could be finished or th "North Wales Narrow Guage Railway" completed. With cheaper transit slate quarries could be opened, and possibly some of the numerous copper lodes of the district would pay for working.

Referring to the article on "Mineral Phosphates," which appeared in last week's Journal, the reference to phosphatic deposits in Flintshire, which also appears in the "Mineral Statistics for 1876," is, I think, a mistake. From the deposits of Montgomeryshire about 1500 tons have been sent into the market, and at the Berwyn Mine, near Llangynog, efforts are now being made which are likely to be successful to keep up the quality of the phosphate to an uniform average of 50 per cent., if not more. There are millions of tons of the mineral in this latter county, which with care and cheap transit might be worked at a fair profit.

TRADE OF THE TYNE AND WEAR.

April 17.—A slight improvement in the Steam Coal Trade has caused many of the works to be better employed during the past week. Demands for local reductions have been made at some of the works of from 2d. to 4d. per ton, and it is likely that some further concessions will be made by the men. If this is not done there is no doubt whatever that several works will be closed shortly. The House Coal Trade has fallen off, and a reduction has been made of 1s. per ton. Best house coal is now quoted 9s. to 10s. per ton at the pits. Shipments of gas coal continue pretty large, but there is still great competition for the sale of all small, furnace, and manufacturing coal, and the price consequently keeps very low. It is remarkable that at the present moment when the coal miner is getting very low wages, and the coalowner little or no profits, when most of them indeed are threatened with absolute ruin, the coal merchants in London are making good profits. The price paid by these merchants for good house coals at present is 16s. per ton, and their selling price is 26s. per ton. It is true the merchants will have losses from deterioration and bad debts, distribution, &c., but the balance clearly shows that they are getting the lion's share. Can nothing be done to bring the colliery owner and consumer nearer together, which would certainly benefit both parties.

The iron market at Middlesborough was thinly attended on Tuesday, and the tone of business very unsatisfactory, buyers being scarce. The quotations remain nominally the same—No. 1, 43s.; No. 3, 40s.; No. 4 forge, 39s., but actual sales are made at 39s. 9d. The deliveries of pig-iron coastwise are well kept up, and above 6000 tons were sent to Scotland last week. Of late the deliveries for Scotland have been heavy, the easier rates of Cleveland pig metal having given an impetus to the trade. One Middlesborough firm alone have orders booked to send above 1000 tons per week. The sea delivery gives Cleveland an advantage in sending iron to Scotland over the inland trade, which has to be done by railway at increased freight. The foreign deliveries, everything considered, are fairly maintained, but they would be much greater were all danger of war past.

The Baltic trade for iron and coal, which usually at this season of the year is getting very brisk, is paralysed by the prevailing uncertainty. An increasing market is being found in the Sheffield and Lancashire districts for iron made in Cleveland, where special facilities for cheap production exist. The manufactured iron trade is dull. Plates have been less in demand, and can be bought for less money. About 2s. 6d. represents the difference as compared with two or three weeks since; 6*l*. 5s. to 6*l*. 7s. 6d. is the general quotation for plates. Bars are unchanged. Angle-iron is rather more sought after, at 5*l*. 15s. to 5*l*. 17s. 6d. The reduction of wages by 7½ per cent. has caused some dissatisfaction amongst the iron workers, but no serious resistance is anticipated. Coal and coke are extremely dull, and sellers find it difficult to dispose of any quantity.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

April 17.—A novel point has been raised in this district under the Mines Regulation Act, and an important decision given by the stipendiary magistrate of the Pentre Police Court. A lampman in the employ of the Fernhill Colliery Company was summoned for allowing a lamp to be taken underground in such a condition as to result in an explosion, whereby the man carrying it was burnt. The point raised by the defence was that the duty of seeing whether the lamp was in a fit state devolved upon the fireman, who, under the Act, should finally lock the lamp and deliver it to the workman. The stipendiary decided that the defendant was liable for the defective condition of the lamp, and fined him 40s. and costs.

The West Moor Colliery at Neath has been flooded, causing the death of three men and a boy; the pit is worked on the slant. Traces of former workings exist in abundance in the neighbourhood, but it is said to be more than a century since the last pit was closed; however, on Tuesday one of the old headings was struck, and at once in poured a rush of water and debris. With the exception of the four persons mentioned all the other men made their escape, and got to the top of the slant. The bodies of two of the men have been recovered. The water has subsided to some extent.

At the Warwick Assizes a case of some interest was decided. The defendants were Messrs. Thomas and Griffiths, of Cardiff, and who own the Gelli Collieries, in the Rhondda Valley, and they were sued by the Midland Wagon Company, Birmingham, for 75*l*. the hire of wagons. The case for the defendants was that the wagons were defective, and were useless to them, as the Great and Taff Vale Railway Companies refused to allow them to run on their lines. The jury found a verdict for the defendants.

A number of gentlemen (among them Mr. Edward Williams, of Middlesborough) well known in the staple trade are said to be making a valuation of the Cyfartha works and collieries, but there is believed to be no prospects of a sale, too many obstacles, one being the high amount of purchase-money required, standing in the way.

During the week the Iron and Steel Trades cannot be said to have improved to any extent, but it is apparent that a better demand for best descriptions of these commodities is slowly but surely springing up. The orders on masters' books comprise few of any magnitude; neither do the future prospects look brighter. The demand from the Continent is not good, neither does any briskness pervade the colonial enquiry. Iron rails are in slack request, and the depression has also spread to the rail department of the steelworks. Iron bars are in limited request still for the purposes of foreign exportation. Pigs are accumulating at some of the works. The Tin-Plate Trade has been little altered. The works are fairly active, but prices continue at the same low ebb. In Monmouthshire several works, long closed, show no signs of a re-start. A meeting of the trade had been convened for Tuesday next, at Swansea, in reference to the production question, and we learn that a committee appointed last week at Birmingham to consider the subject have decided to recommend that the production be reduced one-third, the calculation to be on the basis of the number of boxes made. The present price of tin-plates is lower than ever before known. The recommendation, if agreed to, is to come into operation at once.

The Coal Trade remains *in statu quo*. There still exists a fair demand on foreign account for steam coals, and it is extremely satisfactory to note that Cardiff now exports a much larger quantity of coal to foreign ports than the important port of Newcastle. Prices, however, are at a very low ebb, and show no signs of rising. The collieries are not quite so well employed, taking the aggregate. The house coal trade is dull, and the same remark applies to the patent fuel department. Clearances of the latter have recently shown a falling off.

During last month Cardiff cleared 6974 tons of iron, against 4097 tons in the same month of the previous year; Newport, 8536 tons, compared with 10,793 tons; and Swansea, 321 tons, compared with 963 tons. The principal shipments made were:—Bombay, 845 tons Gothenburg, 2959; Gefle, 1340; Wellington (New Zealand), 1248;

Aarlum, 800; Cape Town, 562; Norrkoping, 750; Payta, 600; Porto Torres, 855; Rockingham, 1138; Rivoli Bay, 787; Santander, 800; St. John, 614; Verkeback, 760; and Warberg, 690 tons rail. In March last Cardiff also cleared foreign 325,868 tons of coal, against 316,635 tons in March, 1877; Newport, 58,595 tons, against 58,712 tons; Swansea, 61,030 tons, against 54,432 tons; and Llanelly, 6529 tons, against 5427 tons. During the same period Cardiff shipped coastwise 63,539 tons, as contrasted with 65,885 tons; Newport, 62,095 tons, compared with 73,161 tons; Swansea, 23,147 tons, compared with 24,138 tons; and Llanelly, 10,121 tons, compared with 9242 tons. The patent fuel exported was as follows:—Cardiff, 5797 tons, against 11,010 tons; Swansea, 7283 tons, against 10,677 tons.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

April 18.—In Derbyshire there has been no change during the week in the business doing at the mines and ironworks. In the lead districts quietness is still the ruling feature, so that the output of ore is still moderate, but there is some prospect of its increasing during the year, although we hear of no new ventures on the *tapis* or marked extensions. There are only few companies working the ore, and these are all but in a very healthy state. The coal trade is still very dull, prices low, and the workmen only partially employed, and this state of things is likely to continue, for there does not appear any chance of an improvement taking place, at least so far as house coal is concerned. Not so much is now being done at the leading collieries with the Metropolis, and with the mild weather the consumption cannot fail to fall off. From Clay Cross, Langley Mill, and other of the leading collieries there is not so much coal going southwards. Steam coal has not materially improved of late, although the signs are more healthy than they have been. The miners have become more settled, and the reduction having been pretty general and uniform, matters are now going on more amicably than previously. The production of pig is kept up to the average, but the demand does not keep pace with it. The foundries are by no means busy, but some are much better off than others. At Dronfield they appear to be as busy as ever in Bessemer rails, which is now the bright particular branch of the steel trade at all places where Bessemer is made.

In Sheffield there has been a little more doing in anticipation of the Easter holidays, when it is probable that some places will be closed for several days for the purpose of making repairs and alterations. A good deal of attention has of late been paid to the making of plates of mixed metal that will show the greatest resisting power to heavy guns, but no material progress in that direction appears to have been made so far. Some heavy plates are still being rolled, but not to any great extent, whilst ordinary ship-plates are in better request. It likely that a better business will be done in steel plates, for they appear to be in increasing demand for the sheathing of vessels in preference to iron. Patent steel wheels are making considerable headway, and are being most actively pushed by the makers. In general cutlery there is scarcely so much doing as there was a week or two since, more particularly as relates to common qualities of table and pocket knives. There is nothing new to be stated with respect to Bessemer rails, for the makers are as busy as ever they have been, and no doubt will continue so, for the iron rails that are being taken up are almost entirely replaced by those made of Bessemer. The price of the latter is now so low that to have iron is now out of the question, when the value as well as the life of each is considered. Some of the foundries have been fairly off for business, the production being principally light castings. Air-compressing machinery for colliery work is now more enquired for, and some good orders are in hand for engines and compressors.

There is nothing that is new to be stated with respect to the Coal Trade of South Yorkshire, which is still in anything but a cheering state. Very large stocks are to be seen at many of the pits, which appear to increase more than otherwise. A considerable number of men are still out of work, having struck at two or three places. At Dodworth Silkstone the pit is now worked by non-Unionists, and their number has increased during the week. The old deputies have been discharged without any reason being assigned for that course. The Higham Colliery, belonging to the same company, has been set down, as the men would not agree to the terms proposed by the manager. At Manvers Main the men are working as usual on the award. It is expected that the men recently employed at Mitchell's Main will resume work in a few days, seeing that they are offered the same wages as are paid at other places.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week business has continued restricted, and there is no hope of immediate improvement, owing to the approaching Easter holidays. Political affairs wear peaceful and warlike aspects by turns, raising or depressing prices, but only within narrow limits, as though investors are closely watching the different markets, they will enter into no extensive transactions till a more settled state of affairs is reached. In shares of iron and coal companies, Bolckow, Vaughan, A, have improved 2s. 6d. per share, while Ebbw Vale are 12s. 6d. lower. The yield at present prices on Antrim Iron Ore, A, shares is 4 per cent., and on the B share 4¾ per cent. Chapel House debentures and shares are unaltered. A call of 2*l.* per share has been made on Chatterley Iron shares; as there are 14,860 of these shares this represents a further capital of 29,720*l.* The Great Western meeting will, it is expected, pass off satisfactorily to-day. A call of 2*l.* 10s. per share on the 20*l.* shares of the Ivy House and Northwood Colliery, which will make them fully-paid, is due on June 15; as there are 3475 of these shares, the capital thus raised will be 7687*l.* Spon Lane is now raising coal, and as it stands in a similar position to Sandwell Park it is probable the shares will be at a premium soon in place of a discount, as at present. The shares of the new company—Ynisedwyn—are being well taken up in Glasgow, as it is understood the former proprietors realised as high as 50 per cent. dividends on a larger capital. Andrew Knowles and Sons are at 70s. dis. Antrim, A, 43s. 6d.; ditto B, 40s. Bolckow, Vaughan, A, 54¼ to 54¾. Cannock and Huntington, 8½ dis. Cardiff and Swansea, 15s. to 20s. Charles Cammell and Co., 8½ dis. Chillington, 57s. 6d. to 60s. Crown Preserved, 30s Darlaston 5 per cent. debentures, 35. Ebbw Vale, 6 to 8. Great Western, 30s. Hamstead, 6 dis. Henry Briggs, A, 13½; ditto, B, 7½. John Bagnall and Sons, 50s.; ditto (mortgage), 95 to 98. Muntz Metal, 65s. to 70s. prem. Nant-y-Glo and Blaina (pref.), 17 to 20. Newport Abercarn, 57s. 6d. to 62s. 6d. Pelsall, 11 dis. Rhymney (new), 5. Sandwell Park, 13½. Scottish Australian, 32s. 6d. to 37s. 6d. Skerne, 5 to 6. South Wales, 10½. Spon Lane, 5½ to 5 dis. Staveley, B, 55s. prem.; ditto C, 79½; and ditto D, 123¾. Thorp's Gawber Hall, 53s. 9d. Tredegar, A, 10½. Walsall Wood, 50s. dis. West Cumberland, 7¾. West Mostyn (pref.), 25s. Wigan, 62 to 67.

In shares of foreign copper concerns Huntington have improved 1s. per share, but Panulcillo are reduced 5s., and Tharsis 2s. 6d. Kapunda are at 1s. New Quebrada, 32s. 6d. Rio Tinto 5 per cent., 56¾. Yorke Peninsula, 5s.

Shares of home mines are neglected, but tin mines have been active occasionally during the week. At the South Condorrow meeting yesterday a dividend of 8s. per share was declared, and the shares are now dealt in ex div. The Glasgow Caradon sale to take place to-day is computed 225 tons, which compares with 210 tons last month, which in the corresponding month for some years back the sales have ranged from 240 to 260 tons. The Combmartin Mine is carrying on its explorations at the very moderate monthly cost of 70*l.*, and in the next six months three important points will be proved, so the concern has good prospects of early success. Notwithstanding the depression in the coal trade the General Mining Association showed a profit on the working of their mines for the past half-year. Bampfylde are at 4s. Bedford United, 5s. Cargoll, 17s. 6d. Carn Brea, 46. Combmartin, 5s. Cook's Kitchen, 40s. Devon Great Consols, 60s. Dolcoath, 32¼. East Caradon, 8s. 9d. East Pool, 9. Gregwinion, 70s. Great Laxey, 18¾ ex div. Gunnislake (Clitters), 20s. Gawton United, 6s. 3d. Glenroy, 20s. Herodsfoot, 7. Hingston Down, 8s. 9d. Leadhills, 80s. Killifreth, 1s. Marke Valley, 12s. 6. Mellanear, 90s. Mwyndy, 30s. Phœnix United, 82s. 6d. Prince of Wales, 1s. 3d. Rookhope, 18s. to 19s. South Caradon, 80. South de Eresby, 22s. 6d. Tincroft, 12. Van, 23. West Basset, 16s. 3d. West Chiverton, 12 to 13. West Frances, 60s. West Tankerville, 10s. to 12s. 6d. West Tolgus, 66. West Seton, 11½. Wheal Crebor, 12s. 6d. Wheal Jane, 20s. Wheal Kitty, 40s. Wheal Peevor, 6¾. Wheal Uny, 20s.

In shares of gold and silver mines Richmond are 10s. lower, the week's run being $90,000. The Santa Barbara advices for February are that 878 tons of mineral were stamped, producing 3·58 ozs. of gold, at an estimated profit of 251*l.* The directors of the South Aurora Company have prepared a plan of reconstruction to which the shareholders are being asked to assent or otherwise. Cedar Creek are at 8s. Chicago, 27s. 6d. Eberhardt, 6¼. Emma, 1s. 6d. Flagstaff, 13s. 9d. Frontino, 37s. 6d. Javali, 6s. 6d. St. John del Rey, 310. South Aurora, ⅛ to ¼. Shares of oil companies quiet, but firm. Uphall, 1s. 3d. lower. West Calder debentures offered. There have been few transactions in shares of miscellaneous companies. Lawes' Chemical, 7 per cent. (pref.), wanted. Hopkins, Gilkes, and Co., 8¾ dis. Milner's Safe, 8. Native Guano, 55s. Wagon Companies' shares have been more dealt in, but at lower prices. Scottish, at 11½, are reduced 2s. 6d. per share, and new shares also reduced 1s. 6d., at 8s. Bristol and South Wales are 7¾; Birmingham, 17¾; ditto, 6 per cent. (pref.), 11⅞; Gloucester, 9½; Midland, 17; North of England, 53s.; and Swansea, 55s.

THARSIS SULPHUR AND COPPER COMPANY (Limited).—A correspondent, "Accountant," in the Supplement of last week's Journal makes some remarks on this company which would not have required any notice, being only another of those useless attempts we have been treated to for the last 10 years to show by garbled figures that the company could not make any profits, which attempts have always been refuted by actual results; but "Accountant" asserts that a statement made in the report from Scotland that the shares would yield 9 per cent. was incorrect. The statement was that the shares would yield about 9 per cent., and was strictly correct, because they could at that time be had under 22½. "Accountant" proceeds to state that at 22½ they yield 7¾ per cent., which is not correct. Any one purchasing them now at 22½ does not require to pay for them till April 29 at soonest; and within some 10 days after that, the purchaser gets 17s. 6d. per share back, being the proportion of the dividend, the accrued dividend must be allowed for in any calculation, hence the yield is more than 8 per cent. In regard to the Tharsis Company, however, if "Accountant" had stated that during the last 10 years this company on a share capital of less than 1,000,000*l.* has paid the shareholders more than 1,500,000*l.* in cash dividends, not including the one just declared, besides writing off and laying aside nearly 800,000*l.*, that still the mines appear inexhaustible in productiveness, and the prices of metals and chemicals are now so low, though fluctuations may likely occur, that it is almost beyond belief that they will form the average for the next 10 years, he would have supplied juster data on which to form an estimate of the value of the concern. Examination can only confirm the opinion we expressed last week that this is an investment which rests on a sound basis.

HALKYN DISTRICT MINES DRAINAGE COMPANY.—This company, which was incorporated by special Act of Parliament, with the Duke of Westminster as Chairman, for draining by tunnels or adit levels a rich and extensive mineral district of 7414 acres, in the county of Flint, is, we hear, making rapid progress with tunnel No. 1, towards the Rhosesmor Mine. Very large sums have from time to time been expended in endeavouring to unwater many of the above mines by means of steam and water power, but all attempts to do so effectually and continuously have failed. Besides the Rhosesmor, there are many other other mines in the companies' district noted for their wealth, but one by one they have ceased to be worked, and now there is scarcely a single mine there which is worked below the water level, although it is notorious that a great wealth of ore is left buried in the water in many of them. By the Act the company is empowered to levy on the mines drained by its works royalties varying from 2*l.* 10s. for every ton of lead or lead ore raised downwards. Thus, after the district is once drained, this company will require very little expenditure beyond the staff charges and the cost of keeping the tunnels in repair, which will likely be inconsiderable, so its profits should be very large. The capital is 100,000*l.*, in 10*l.* shares, but only half have been issued.

RHOSESMOR MINING COMPANY (Limited).—As this company's mine will be the first to be benefited by the operations of the Drainage Company, referred to above, the following facts regarding it may be useful to investors. The company holds leases of the Rhosesmor Lead Mine, situate about three miles from Mold, in Flintshire, comprising an area of about 160 acres. The extraordinary productiveness of this mine, as yet only worked to comparatively shallow depths, has made it, with perhaps one or two exceptions, the most noted lead mine in the Principality. Started originally by a few adventurers under the Cost book System great profits were made and paid, but adequate provision not having been made for contending with the water, which as the mine deepened had to be dealt with, a limited liability company was formed in 1865, by whom a new shaft was sunk, and powerful machinery erected. The water, however, could not be kept under. Again, in 1870 another company, the present one, was formed, as it was the opinion of mining men in the district that plenty of lead would be got provided only that the mine was unwatered. The attempt was perfectly futile, and pumping was at last given up in 1871-2, but not before they had satisfied themselves of the continued productiveness below the water level of the old lode, which had given them great profits. Now the Drainage Company's tunnel will be driven at a level 30 to 40 yards below the lowest level on the old lode, and assisted by the modern rock-boring machinery, that there can be little doubt of success. The operations are now far advanced, and it is quite impossible to say how soon the unwatering of the mine may not be effected. The shafts, levels, and machinery have been maintained in good order, so will be in condition for work at once. The capital is 45,000*l.*, in 3*l.* shares, now at 30s. to 35s.

Subjoined are this week's quotations, &c., of mining and metal shares quoted on the Scotch Stock Exchanges:—

Capital. Per share.	Paid up.	Dividends. Rate per cent. per annum. Previous.	Last.	Description of shares.	Last price.
				COAL, IRON, STEEL.	
£ 10	£8	£ 6½	£ 7½	Arniston Coal (Limited)	7¼
10	10	4	4	Benhar Coal (Limited)	5l. 13s 6d
100	50	22s6d‖	31s6d‖	Bolckow, Vaughan, and Co. (Lim.) A.	54½
10	10	10	10	Cairntable Gas Coal (Limited)	8¼
10	10	4s‖ April, 1876		Chillington Iron (Limited)	65s.
23	20	10s‖ Dec., 1874		Ebbw Vale Steel, Iron, and Coal (Lim.)	7½
10	6	nil	nil	Fife Coal (Limited)	70s.
10	10	nil	nil	Glasgow Port Washington Iron & Coal (L)	35s.
10	10	—	—	Ditto Prepaid	40s.
10	10	—	—	Lochore and Capledrae (Limited)	80s.
10	10	nil	3	Marbella Iron Ore (Limited)	55s.
10	10	nil	nil	Monkland Iron and Coal (Limited)	35s.
10	10	5	4	Ditto Guaranteed Preference	60s.
100	100	nil	nil	Nant-y-Glo & Blaina Ironworks pref. (L)	19
6	6	nil	nil	Omoa and Cleland Iron & Coal (L. & Red.)	7s. 6d.
1	1	15	15	Scottish Australian Mining (Limited)	35s.
1	10s.	15	15	Ditto New	15s.
Stock	100	nil	nil	Shotts Iron	91
				COPPER, SULPHUR, TIN.	
4	4	—	—	Canadian Copper and Sulphur (Lim.)	4s.
10	7	5	5½	Cape Copper (Limited)	30
1	1	2½	7½	Glasgow Caradon Copper Mining (Lim.)	21s.
1	15s.	2½	7½	Ditto New	13s.
10	9¾	nil	nil	Huntington Copper and Sulphur (Lim.)	32s. 6d.
25s.	23s.	—	—	Kapunda Mining (Limited)	1s.
4	4	—	—	Panulcillo Copper (Limited)	20s.
10	10	6†	6†	Rio Tinto (Limited)	60s.
20	20	7	7	Ditto, 7 per cent. Mortgage Bonds	13
100	100	5	5	Do. 5 p.ct. Mor. Deb. (Sp. Con. Bds.)	55
10	10	22½	20	Tharsis Copper and Sulphur (Limited)	22 11s 3d
10	7	22½	20	Ditto New	15¼
1	1	—	—	Yorke Peninsula Mining (Limited)	6s. 3d.
1	1	—	—	Ditto, 15 per cent. Guaranteed Pref.	17s. 6d.
				GOLD, SILVER.	
1	1	—	—	Australian Mines Investment (Limited).	8s.
5	5	7s. 6d‖	7s. 6d‖	Richmond Mining (Limited)	9½
				OIL.	
10	7	6	15	Dalmeny Oil (Limited)	7¾
1	1	7½	25	Oakbank Oil (Limited)	40s.
1	5s.	—	25	Ditto	10s.
10	10	2½	7½	Uphall Mineral Oil (Limited) "A"	5l 18s 9d
10	10	—	—	Ditto "B" Deferred	10
10	10	—	—	West Calder Oil (Limited)	40s.
10	8¼	9	17½	Young's Paraffin Light & Mineral Oil (L).	14l 18s 9
				MISCELLANEOUS.	
50	25	5	6	London and Glasgow Engineering & Iron Shipbuilding (Limited)	24¾
7	7	10	15	Phospho Guano (Limited)	9¼
10	10	6	6	Scottish Wagon (Limited)	11½
10	4	6	6	Ditto New	86s.

† Interim. ‖ Per share.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.
Post Office Buildings, Stirling, April 18.

LEAD MINING IN THE NORTH OF ENGLAND.

Lead mining is the patriarch of northern mineral industries, but as it is more retiring than coal or iron, it is less known than these industries. But long before coal had been wrought in the North, and generations before the iron trade had any appreciable extent, lead mining was known and practised in the North of England; and for long more than a quarter of all the lead ore raised in the United Kingdom has been extracted in the counties of Northumberland and Durham. Its mining districts are near the centre of that narrow part of the country where the four northern counties join. From beneath the coal strata of the eastern and western coasts the lead measures rise, cropping eventually out at the surface in that range of elevated land which runs from Scotland to Derbyshire. It is supposed that some of the lead mines in that wide district—such, for instance, as those on Alston Moor and those in Swaledale—were known to and worked by the Romans, but though traces of olden melting-places are to be found, and though pigs of lead bearing the names of Roman emperors have been discovered, yet there are, so far as is known, no records of exact workings. In the time of Henry IV. Northumberland and Durham are included in the list of counties producing lead ore containing silver. In 1475 King Edward IV. granted to the Duke of Gloucestershire, the Earl of Northumberland, and others, mines in Northumberland and Yorkshire; and there are late records of the grants and charities that have been made in reference to the lead mines of the North. Gradually the mines have come down into the hands of their present possessors—the Beaumonts, for the chief mines in Weardale and Allendale; the London Lead Company for the chief in Teesdale; and others for the remaining dales in the North in which lead is still worked. And in most of these except agriculture lead mining is the controlling industry. In Weardale iron ore is worked, but it is fitfully (in periods of high prices in iron), and to a comparatively limited extent. In Teesdale limestone and whinstone are quarried; but in these, as in all the other and smaller dales of the North, it is to the working of lead that the bulk of the workers look for support. Although the prices of lead vary considerably, and the competition with other lead-producing nations is keen, yet the production of lead is on the whole steady, and in the North this is especially the case—the tendency over a period of years being to increase. In Cumberland, 30 years ago, 5500 tons of lead were annually raised, and though the quantity has risen and fallen, yet in the period for which the last official returns were made the output had sunk to 2500 tons for the year; but in Durham and Northumberland, which 30 years ago gave up 10,200 tons annually, there has been an increase gradually until 16,730 are raised of lead, the lead ore being proportionately larger. There have, moreover, been very great improvements in the treatment of lead ores in that time, and more especially of recent years, the mode of working mines being now much more scientific and less wasteful. A better product of lead is now obtained from the refuse products of the mills, the desilverising process saves quantities of lead and of the silver it contains, and the process of calcining is very greatly improved. These improvements have been carried further, and the washing of lead ore is now much better done by machinery than it used to be, whilst in some parts of the northern districts successful attempts have been made to obtain motive power and gas from the vast quantities of peat near the mines and smelting mills, and a very great economy is thus known. As the results of these improvements not only has there been a growth of leaden industries in the North, but there has been an enlargement in demand made practicable, which has swallowed up imports of lead into the North, increased in 30 years from a few hundred to nearly 30,000 tons, and has made practicable that large increase in the home mining industry to which reference has been made. In place of 2000 tons of lead the mines of the Great Teesdale Company give now 6900 tons yearly, and there has been in this and the adjoining dales a considerable development of mining enterprise on an individually smaller scale. Thus out of the 79,096 tons of lead ore raised in Britain the two counties of Durham and Northumberland yielded from 28 mines over 22,285 tons, and the extraction of lead from this was on a fully equivalent scale.

This great industry of Western Durham and Northumberland is hidden; it does not display its presence as does that of the allied industries of coal and iron. The traveller by rail through the North has not its presence brought before him by dark but flame-crowned furnaces and halo-lit ironworks, nor by the smouldering pit heaps, the clouds of smoke, or the mine mouth machinery. Only at junctions occasionally a few tons of pig-lead are to be seen, and far up the sources of the river are grey with the occasional "hush" from the mine. Failing the mounds of slag which show the pervading presence of the iron industry, or the intermitting miles of wagons, coal-laden, which show the abode of the coal king, the searcher after the leaden industries must look far inland—often in bye-paths and in comparatively unfrequented places. Far across moors, bleak till the heather makes them purple, up narrow little valleys, whose fertility makes more barren the cold hills that shut them in, and along the foot of these hills the lead miner has his haunt. As his work is a laborious and to a considerable extent an unhealthy one, it is deemed advisable to limit the extent of the week's work, and thus 40 hours very frequently is the limit. Nor is that amount equally divided into days, for in many instances these hours are worked in the first four working days of the week, or in the first five. The mines are often situated long distances from the little mining villages that dot the valleys, and thus it is found advisable to erect very often barracks for the miners—rude dwelling-places scantily furnished, where the intervals of rest between the shifts may be passed, where food may be partaken of, and where in an upper chamber roughly inviting beds are spread. In this way aided to lessen the time that would have been lost, the working hours are made compact. Piecework, however, prevails, but in a peculiar manner. The work of getting the lead is let either at a given rate per fathom, or at a given price for the bing of lead. The miner is supplied with mining requisites, and debited with their price; and he is, moreover, debited with a certain sum paid to him weekly as "subsistence money" until the close of the period of his contract, when he is credited with the amount he is entitled to at the rate agreed upon for the work performed. Any balance against him, if he has not been successful in the lottery of lead mining, is carried to his debit in the next account; any balance due to him is paid when previous debits have been discharged. Thus, to a certain extent, the men have the advantage of the benefits of piece-work, of regular wages, and to a certain extent of a co-operative mode of remuneration. His wage, or subsistence money, is invariably paid, and it has in the past years been raised from its low minimum to about 12s. weekly. Owing to the secluded situation of the leading mining districts, his house and his garden are cheap, whilst his leisure time enables him to till a little land, to cultivate a garden, or in some way add to these small earnings. The periods of reckoning were long, and credit was necessary, so that in one large lead mining dale yearly settlements were the rule, both between employers and workmen, and workmen and shopkeepers. But with a population little given to change, honest, and greatly attached to the dales they dwelt in, the evil results often attending long credits were not so perceptible, and with the better demand in recent years, till the last, for labour in the North, the lead miner has been enabled to earn larger wages, but they are still below what is earned in similar employments where the demand is continuously greater, and there is a greater certainty to the employer of remuneration for his invested capital—that is to say, in mining industries of a less speculative nature. In one of the largest northern dales the average earnings of the miners employed by the largest labour employers has varied from about 15s. to 1*l.* per week, but that week as has been stated is one of 40 hours' work.

By the necessities of their position, as well as the smallness of their earnings, the lead miners are frugal and sober. They are intelligent as a rule, some of the chief employers having long ago declined to employ boys as lead washers till they were fairly proficient in rudimentary knowledge, and having erected large schools to meet the requirements of the populace dependent on the industry. There is a considerable devotional element in the character of the bulk of the mining population. The church draws large revenues from a considerable part of the lead mining district, but it has wholly neglected spiritual provision in the past, and thus an open door was left for Methodism, which entered in and took possession of the land. And although the church is now a little more awake, it finds that in the dales it musters few and small congregations, whilst the Wesleyans and Primitive Methodists number their members by the hundreds. But the religious feeling has not banished from the dalesmen their love of sport, and thus there is a mixed appearance of character, and chapels and wrestling rings are both frequented well, though in different degrees. Time is removing also some of the quaint customs of the dales, and the clanship long known there, and carried out to an unreasonable extent, and it is modifying other phases of character. But though it, the introduction of railways into the dales, and the spread of education, may have a further influence in removing some of the peculiarities of life and of labour in the northern lead mining dales, it is to be hoped that the sturdy, independent, and sober character of their people may be in no way lessened. There is not for the lead mining industry in the North a future apparently so promising as that of the coal and iron trades, but there does seem to be promised for it a fair measure of prosperity; and with the development of better systems of mining and smelting, as well as with the introduction of greater facilities for working and carrying the product of the mines, there should be a brighter future for the mines than has been known in a past which low wages and ill-fortune made in some degree penurious.

— *South Wales Daily News.*

SAN PEDRO (CHILI) COPPER MINING COMPANY (Limited.)—A petition for winding up this company by the High Court of Justice (Chancery Division) has been presented to Her Majesty's High Court of Justice by Messrs. C. E. Huggons, of Northampton Park, Canonbury; H. J. Whaley, of Liverpool-road; Stephen Catterson, of Gloucester-road, Regent Park; and Francis Playford, of the Stock Exchange, stock dealer, creditors of the company. The petition is to be heard on May 2.

*** Now ready, THE MINING JOURNAL, VOLUME XLVII., for 1877. Neatly bound and lettered, price £1 12s. 6d. To be had from our office, 26, Fleet-street, London, or through any newsagent or bookseller.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF FRANK NEWBY WARDELL, Esq., H.M. INSPECTOR OF MINES.

PERSONS desirous of being EXAMINED in this District for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, should at once COMMUNICATE with the Secretary to the Board of the above-mentioned District, at the following address:—J. R. Jeffery, Esq., 5, Piccadilly, Bradford, Yorkshire.

By order of the Board,
JOHN R. JEFFERY, Secretary.

N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

NORTH LONDON RAILWAY COMPANY.

THE DIRECTORS of the NORTH LONDON RAILWAY COMPANY are prepared to RECEIVE TENDERS for the SUPPLY of THIRTY THOUSAND TONS (or any lesser quantity) of SMOKELESS SOUTH WALES STEAM COAL, suitable for locomotive purposes; the deliveries to be extended over a period of twelve months, or thereabouts, commencing about the 1st day of August next.

Particulars of the terms and conditions of tender can be obtained on application to the Locomotive Superintendent at the Company's Works, Bow-road, London, E.

Tenders to be sent in before Twelve o'clock on Tuesday, the 30th instant, addressed to the undersigned, marked outside "Tender for Locomotive Coal."

The Directors do not bind themselves to accept the lowest or any tender.

G. BOLLAND-NEWTON, Secretary.

Secretary's Office, Euston Station, London, N.W., April 11, 1878.

THE CARDIFF AND SWANSEA SMOKELESS STEAM COAL COMPANY (LIMITED).

STORES.

TENDERS for STORES are INVITED for the ABOVE COMPANY.

Applications for Forms of Tender to be made to—
JOHN DAVIES, Secretary.

6, Great St. Helen's, London, E.C.

UNITED MEXICAN MINING COMPANY (LIMITED).

Notice is hereby given, that the ORDINARY HALF-YEARLY GENERAL MEETING of proprietors will be HELD at the office of the company, on WEDNESDAY, the 8th day of May next, at One o'clock precisely.

At this meeting Charles Morris and John Weston, Esqs., retire from office as directors, but being eligible offer themselves for re-election.

The two auditors, William Turquand and Jeremiah Carter, Esqs., also retire, but offer themselves for re-election.

The above meeting will be converted into an EXTRAORDINARY MEETING, for the purpose of considering and passing the following resolution:—

That the resolution of the Extraordinary General Meeting of proprietors held on the 25th March, 1868, be varied, by rescinding so much of the proviso therein as declared that the total amount to be called for the purposes mentioned in such resolution should not exceed 15s. per share; and that a call of 2s. 6d. per share be and the same is hereby made on all the shareholders in the company, the same to be payable on the 5th day of June next.

The Transfer-books will be closed on the afternoon of the 27th instant, and re-opened on the day succeeding the meeting.

By order of the Board,
W. M. BROWNE, Secretary.

Office,—No. 3, Great Winchester street Buildings, E.C.,
London, 18th April, 1878.

DEVON AND CORNISH MINES.

THE DIFFICULTY experienced by London and other distant Mine Shareholders, in obtaining RELIABLE INFORMATION respecting the state of Devon and Cornish Mines, may be most effectually overcome by corresponding with the undersigned, who from personal inspection and investigation is in a position to give sound advice respecting same.

The advice given will be based upon sound judgment and ability, but at the same time so exceedingly fluctuating is mining that he does not in any way hold himself responsible, or subject to blame, should results not always equal expectations.

A Special Report and Inspection of any Mine in Devon or Cornwall for £2 2s.

SPECIAL BUSINESS IN
GREAT WHEAL RODD AND PARACOMBE SILVER-LEAD MINES,

These very promising Mines are especially worthy of the attention of everyone, as they undoubtly will prove the most profitable Silver-lead Mines of Devon and Cornwall. Particulars may be obtained from—

R. J. RUTTER,
MINE BROKER,
5, PYNE'S TERRACE, EXETER.

Mr. E. JACKSON,

Associate of the Royal School of Mines,
ANALYST AND ASSAYER.

Assays or Complete Analyses made of Copper, Silver, Lead, Zinc, Tin, and other Ores. ASSAYING TAUGHT.

106, QUEEN VICTORIA STREET, LONDON, E.C.

EMMENS AND CO. (LIMITED),

MINING ENGINEERS AND MANUFACTURING CHEMISTS.

CHIEF OFFICE.
194, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

MINING DEPARTMENT.—The Management of Mines undertaken, and Technical Reports and Surveys made.

CHEMICAL DEPARTMENT.—Ores, Minerals, Acids, Salts, Arsenic, Pigments, Dyes, &c., manufactured and dealt in.

C. H. WALKER AND CO.,

MINING AGENTS AND ENGINEERS,
VALPARAISO AND SAN IAGO,
CHILE.

SEVEN PER CENT. PREFERENCE SHARES.

THE COTTON POWDER COMPANY (LIMITED).

OFFICES,—23, QUEEN ANNE'S GATE, LONDON, S.W.
WORKS,—FAVERSHAM, KENT.

Capital £60,000, in 12,000 Ordinary Shares of £5 each, of which 5041 remain to be issued.

Issue of 3000 Shares, bearing a Preference Dividend of Seven per Cent., pursuant to Special Resolution.

£1 to be paid on application, £1 10s. on allotment, and the remainder in two equal instalments of £1 5s. each, on two months' notice being given of the intention to call up the same respectively.

DIRECTORS.
J. RAMSAY L'AMY, Esq., F.R.S.E.—CHAIRMAN.
R. H. WALLACE DUNLOP, Esq., C.B.
Colonel W. NASSAU LEES, LL.D., Ph.Dr.
EDWARD W. LANE, Esq., M.D.
Com.-General R. M. GARDINER.

MANAGING DIRECTOR—R. M. GARDINER.
BANKERS—Messrs. WILLIAMS, DEACON, and CO.
SOLICITORS—Messrs. TILLEARD, GODDEN, and CO.
AUDITORS—Messrs. SMART, SNELL, and CO.

This company has been in operation since November, 1875, as manufacturers of a powerful and safe explosive, known as Tonite, or Cotton Powder, which is now extensively used in Mines and Quarries, also for Submarine Work,

TORPEDOES, FOG SIGNALS FOR TRINITY HOUSE SERVICE, &c., and is rapidly gaining ground in the market.

The directors are authorised to issue the above-mentioned preference shares for the purpose of paying off a debenture debt, and for increasing the company's business. Subscriptions are invited accordingly.

For further particulars, see full prospectus, to be had at the bankers, 20, Birchin-lane, E.C.; the solicitors, 34, Old Jewry, E.C.; and the company's offices, 23, Queen Anne's Gate, S.W.

NOTE.—Persons wishing to subscribe are referred to the prospectus, which will be forwarded to them free on application, and which contains all necessary particulars, and specifies the names and dates of the parties to all existing contracts.

CAPTAIN ABSALOM FRANCIS, MINING AGENT, ENGINEER, AND SURVEYOR, GOGINAN, ABERYSTWITH. FOUR MINES CERTAIN FOR A RISE.

THE MERRYBENT ESTATE, IN THE NORTH RIDING OF YORKSHIRE.

MESSRS. WATSON AND SON are instructed by the Mortgagee, with power of sale, TO OFFER FOR SALE, BY AUCTION, at the King's Head Hotel, in Darlington, on Monday, the 29th day of April, 1878, at Two for Three o'clock in the afternoon, subject to conditions, all that VALUABLE FREEHOLD ESTATE, called

MERRYBENT,

Situate in the parishes of Melsonby and Middleton Tyas, in the North Riding of the county of York, consisting of—

TWO FARM HOUSES, with the necessary HOMESTEADS and FARM BUILDINGS, and PASTURE, MEADOW, and ARABLE LANDS, with COTTAGES thereon, containing altogether 347 A. 1 R. 19 P., or thereabouts, all now in the occupation of Mr. Matthew Martin.

The property is seven miles from Darlington and six from Richmond, at both which towns there are excellent markets.

A great portion of the estate is underlaid by the mountain limestone, which has been proved to be of considerable thickness and of good quality. Valuable veins of lead and copper have also been found, and there is an excellent bed of freestone on the property.

A line of railway from the Darlington and Barnard Castle branch of the North-Eastern comes within a very short distance of the eastern boundary of the estate, and by means of this railway the minerals can readily be carried to any part of the country.

The DRAWING ENGINE, BOILERS, and other fixed PLANT and MACHINERY now on the estate WILL BE SOLD along with it.

From its great mineral resources the estate cannot but prove a most valuable investment. The limestone is very well adapted for smelting purposes, and if properly worked a very considerable revenue could be derived from this source alone.

Plans and particulars may be obtained of the Auctioneers, at their offices in Darlington; of Messrs. STUBS and SON, Solicitors, 7, Furnival's Inn, London; or of Messrs. SCHOLEY, WILSON, and NORTH, Solicitors, Wakefield.

TO BE SOLD, BY PUBLIC AUCTION, under Decree of the Supreme Court of Newfoundland in Equity, in a suit between CHARLES FOX BENNETT, Plaintiff, and SMITH MCKAY and LEANDER GILL, Defendants, on Monday, the 2nd day of September next, at Twelve o'clock noon (if not previously disposed of by private sale), at the Court House, in St. John's, Newfoundland, that VALUABLE COPPER MINE and MINING PROPERTY called and known as the

UNION MINE,

Situate on the east and west sides of Tilt Cove, on the north side of Notre Dame Bay or Green Bay, Newfoundland, and near Cape John, with all ERECTIONS, IMPROVEMENTS, PLANT, and OTHER PROPERTY and EFFECTS thereto appertaining.

The mine is held under grant in fee from the Government of Newfoundland, containing two miles in length, by half-a-mile in breadth; a Licence of Occupation from the said Government, containing one mile square, west of and adjoining the Crown grant and land held under conveyance of fee-simple interests of former owners.

The title-deeds and documents, and plans and surveys of the property may be seen, and further information may be obtained, by application to PRESCOTT EMERSON, Esq., Q.C., Master-in-Chancery, at his office, in St. John's; or to either of the undersigned solicitors for the parties, or to either of the parties.

Conditions of sale will be published hereafter.

PRESCOTT EMERSON, Q.C., Master in Chancery,
St. John's, Newfoundland, January 23rd, 1878.

For further particulars, apply to C. T. BENNETT, Esq., No. 55, Queen's-square, Bristol; Messrs. HENRY BATH AND SON, Gresham House, London; or to PINSENT AND GREENE, Solicitors to the Plaintiff; WINTER AND CARTER, Solicitors for Defendant McKay.

SILVER-LEAD MINE,

IN CARDIGANSHIRE.

TO BE DISPOSED OF, at moderate price, AN EXTENSIVE AND VALUABLE SILVER-LEAD MINE, with first-class WORKING PLANT and MACHINERY, which cost upwards of £4000. Situate in CARDIGANSHIRE, and contiguous to several of the best dividend-paying Mines. The Mine has paid large profits.

For particulars and price, apply to Mr. WILLIAM SALMON, F.G.S., Mining Agent, 22, Queen street, Ulverston.

TO CAPITALISTS.

FOR SALE, A MOST VALUABLE, VERY PRODUCTIVE, WELL SITUATED LEAD MINE in SPAIN. The vein shows abundant quantities of unusually rich ore, testing about 76 per cent.

Near this possession besides are OFFERED FOR SALE or LEASE a few LEAD MINES, with rich veins for developing.

Address, Mr. ALBERT WILCKENS, Carlstrasse, 31, Carlsruhe.

April 16, 1878.

FOR SALE, AN IRON BORER, made of best Low Moor iron, 100 ft. in length, with six bits, weighing together 272 lbs., worked only a few weeks.

Apply to THOMAS WILLIAMS, Blacksmith, Pentref, Llanrwst, North Wales.

TO CAPITALISTS.

AN EXCELLENT SLATE QUARRY, in NORTH WALES, is OFFERED FOR SALE, which has been PROVED to be of the BEST QUALITY, and its position affords great facilities to work it both economically and remuneratively. There is abundant supply of water and ample tip room. The vein is about a mile long; average thickness, 60 to 80 yards. Slates may be conveyed either to a main line of railway or a prominent seaport at 2s. per ton. Leasehold 40 years to run. Price £7000.

For further particulars, apply to "H. 16," Brainerd-street, Liverpool.

A MOUNTAIN of SUPERIOR FIRE-CLAY FOR SALE.—An EXTENSIVE SETT, and quantity proved to be practically inexhaustible. Open quarry working, and no sinking. The clay is of exceptional quality; makes the finest white Dinas silica brick, also a brick equal to Stourbridge; also excellent cement. Contiguous to excellent shipping port and railway station.

WILL SELL the WHOLE or PART, or arrange with a COMPANY for PART CASH and SHARES. *Bona fides* only treated with.

Address for further particulars, "Fire Clay," care of Henry Greenwood, Advertising Agent, Liverpool.

TO MINING COMPANIES AND OTHERS.

VALUABLE MINING PROPERTY TO BE LET.

A VALUABLE MINE of LEAD AND COPPER ORE having been discovered at WOODLANDS, CLONSILLA, near DUBLIN, the OWNER, Lord Annaly, is PREPARED to ALLOW properly authorised PERSONS to INSPECT it, with a view to making arrangements for LETTING the SAME.

Mining operations have already been carried on to an extent sufficient to show that the lodes of both lead and copper are most promising, and the situation peculiarly advantageous for working the mine and for carriage of ore both by canal and rail.

Mr. Thomas Poole, the steward of Woodlands, Clonsilla, will show the ground to persons desirous of inspecting the same on their producing a reference from any respectable merchant or firm.

THE OWNER of an EXTENSIVE COPPER CONCESSION (similar to Lake Superior), situated in an Island in the Mediterranean NOW AT WORK, and held from the French Government on most favourable terms, OFFERS ONE-FOURTH SHARE to PERSONS WILLING to ADVANCE progressively £12,000 for the FURTHER DEVELOPMENT of the SAME.

The fullest information, as well as plans, maps, specimens, reports, &c., will be furnished by applying to C. HARCOURT, Esq., solicitor, 19, King's-road, Bedford-row, London, W.C.

18 H.P. PORTABLE STEAM ENGINE, with link motion, reversing gear, ready for delivery; also gear to wind and pump.

A 9 h.p. VERTICAL STEAM ENGINE, with link motion, reversing gear (winding drum if required).

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER, with carriage and travelling wheels.

Apply to—
BARROWS AND STEWART, ENGINEERS, BANBURY.

WINDING ENGINES, NEW PRINCIPLE, best and most compact in the market. Several pairs ready.

PORTABLE WINDING AND SINKING ENGINES, the cheapest and most convenient and durable.

STEAM CAPSTANS AND HAULING ENGINES. The greatrst power in the space of any made.

HORIZONTAL, VERTICAL, AND PORTABLE ENGINES. First-class make and low price.

PUNCHING, SHEARING, DRILLING, AND OTHER MACHINES.

Many of the above secondhand, very cheap.

ALEXANDER SMITH, ENGINEER, THE MIDLAND MACHINERY STORES.—Offices: PRIOR STREET, DUDLEY.

TWENTY-FIVE H.P. PORTABLE ENGINE, FOR SALE, with link motion reversing gear, suitable for Pumping, Winding, &c., almost new, ready for delivery.

J. H. RIDDEL & CO., 49, JAMAICA STREET, GLASGOW.

HENRY WIGGIN AND CO.

(LATE EVANS AND ASKIN),
NICKEL AND COBALT REFINERS,
BIRMINGHAM.

J. J. ARIS AND CO.,

MINING ENGINEERS, MINERAL AND METAL MERCHANTS,
29, FENCHURCH STREET, LONDON, E.C.
Mines inspected and reported upon.

SICKFORD'S PATENT SAFETY FUSE

FOR CONVEYING FIRE TO THE CHARGE IN BLASTING ROCKS, &c

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874, in London; at the "IMPERIAL EXPOSITION," held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869: TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordova, South America, 1872.

BICKFORD, SMITH AND CO., of TUCKINGMILL, CORNWALL; ADELPHI BANK CHAMBERS, SOUTH JOHN-STREET, LIVERPOOL; and 85, GRACECHURCH-STREET, LONDON, E.C., MANUFACTURERS AND ORIGINAL PATENTEES of SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—

EVERY COIL of FUSE MANUFACTURED by them has TWO SEPARATE THREADS PASSING THROUGH the COLUMN of GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as THEIR TRADE MARK.

BENNETTS' SAFETY FUSE WORKS

ROSKEAR, CAMBORNE, CORNWALL.

BLASTING FUSE FOR MINING AND ENGINEERING PURPOSES,

Suitable for wet or dry ground, and effective in Tropical or Polar Climates.

W. BENNETTS, having had many years experience as chief engineer with Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety of his own manufacture, of best quality, and at moderate prices.

Price Lists and Sample Cards may be had on application at the above address or LONDON OFFICE.—H. HUGHES, Esq., 85, GRACECHURCH STREET.

THE BIRMINGHAM WAGON COMPANY (LIMITED)

MANUFACTURE RAILWAY CARRIAGES and WAGONS of EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract. MANUFACTURERS also of IRONWORK, WHEELS, and AXLES. EDMUND FOWLER, Managing Director.

WAGON WORKS,—SMETHWICK, BIRMINGHAM.

ELECTRIC BELL SIGNALS FOR COLLIERIES, FACTORIES, WAREHOUSES &c.,

WITH OR WITHOUT GALVANIC BATTERIES.

NEW SYSTEM—CAN BE RUNG AT ANY PART OF THE ROAD. Cheap, safe, and reliable. Efficiency guaranteed. LINES OF TELEGRAPH erected and maintained. LIGHTNING CONDUCTORS, &c.

For estimates and particulars apply to—

SYDNEY F. WALKER,
LATE G. E. SMITH,
TELEGRAPH ENGINEER,
COMMERCIAL BUILDINGS, LONG ROW NOTTINGHAM

Just published, 8vo., cloth, 10s. 6d.,

ROCK BLASTING:

A PRACTICAL TREATISE ON THE MEANS EMPLOYED IN BLASTING ROCKS FOR INDUSTRIAL PURPOSES.

By GEO. G. ANDRE, F.G.S., Assoc. Inst. C.E.

FIFTY-SIX ILLUSTRATIONS, AND TWELVE PLATES.

London: E. and F. N. SPON, Charing Cross.
New York: 446, Brome-street.

MEXICO, NEW MEXICO, ARIZONA, UTAH, NEVADA, AND CALIFORNIA.

F. M. F. CAZIN,

MINING AND CIVIL ENGINEER,
At BERNALLILLO, NEW MEXICO, U.S. OF AMERICA,

Has 24 years' experience in Mining and Smelting, and 10 years' experience in American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories; gives correct, safe, and responsible advice as to securing full titles and possession; and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the *Mining Journal* Supplement, April 1, 1876, containing report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare *Mining Journal* of Aug. 30 and Nov. 31, 1872, and *New York Engineer and Mining Journal*, Feb. 28, 1874.

MAPS OF THE MINES, AND OF UTAH TERRITORY.

FROISETH'S NEW AND REVISED MAP FOR 1875.—Size 40 by 56 inches, scale 8 miles to the inch. Handsomely engraved, coloured in counties, showing the Towns, Settlements, Rivers, Lakes, Railroads, Mining Districts, &c., throughout the Territory, and all the Government Surveys to date. Mounted on cloth, £2; half-mounted, £1 12s.; pocket form, £1.

Also, GENERAL MINING MAP OF UTAH, showing twenty-eight of the principal Mining Districts adjacent to Salt Lake City, and location of the most prominent mines. Price, pocket form, 6s.

Also, NEW MAP OF LITTLE AND BIG COTTONWOOD MINING DISTRICTS, showing the location of over Four Hundred Mines and Tunnel Sites, together with the Mines Surveyed for United States Patent. Price, sheets, 6s.; pocket form, 8s.

For sale, and supplied by—
TRUBNER and Co., 57 and 59, Ludgate Hill, London; or
B. A. M. FROISETH, SaltLake City, Utah, U.S.

Just published, cloth limp, price 1s. 6d.,

THE COLLIERY READY-RECKONER AND WAGES CALCULATOR.

By JAMES IRELAND.

"Will be the means of preventing many disputes between pay clerks and colliers."—*Mining Journal.*

To be had on application at the MINING JOURNAL Office, 26, Fleet-street, E.C.

THACKRAH'S DAILY SHARE-LIST, issued EVERY EVENING from THACKRAH'S SHARE AGENCY, 29, NORTHGATE, HALIFAX, gives current prices of Shares in—John Crossley and Sons (Limited), Carpet Manufacturers, Halifax; H. Briggs, Son, and Co. (Limited), Whitwood Collieries, Normanton; Norton Brothers and Co. (Limited), near Huddersfield; M. Oldroyd and Sons (Limited), Dewsbury; Bolckow, Vaughan, and Co. (Limited); New Shar'ston Collieries Company (Limited); Yorkshire Boiler Insurance Company (Limited); the Goole Steam Shipping Company (Limited); and more than 250 other companies.

Persons may ensure the regular delivery to them, through the post, of this List or the following yearly payments, inclusive of postage:—Once a month, 2s. 6d.; wise a month, 5s.; once a week, 10s.; twice a week, £1; daily, £2.

LOW PRICES OF METALS.—In consequence of the present miserably LOW PRICES OF METALS, I have REDUCED the PRICES of my MINING MAPS. The "MAP OF CAMBORNE, ILLOGAN, REDRUTH, AND GWENNAP," published at 21s., I will send per book post (free) on receipt of 5s. 3d. "SAINT AGNES DISTRICT," same price. R. SYMONS, 11, PARADE, TRURO.

THE NEWCASTLE DAILY CHRONICLE (ESTABLISHED 1764.)
THE DAILY CHRONICLE AND NORTHERN COUNTIES ADVERTISER
Offices, Westgate-road, Newcastle-upon-Tyne; 50, Howard street, North Shields; 195, High-street, Sunderland.

IMPORTANT TESTIMONY IN FAVOUR OF PARR'S LIFE PILLS, BY A LADY SEVENTY-SEVEN YEARS OF AGE:—

Ball's Pond-road, Islington, December, 1877.

SIR,—I wish to inform you I have taken your Parr's Life Pills for 47 years, and no other medicine, and as I have always found them do me good I have recommended them to all my friends; and to prove the truth to you I have sent you a few lines, enclosed, which I composed and sent to one of my sons, with a box of your valuable Pills, begging of him to try them. I am now in my 77th year, and hearty and well, but unfortunately lost my dear husband five years since; but my dear children are my preservers, and I am as happy as any old maid. If you wish to make use of these lines in any way you are at liberty to do so.

E. J. CATLIN.

Boxes, 1s. 1½d. and 2s. 9d., of all chemists.

DEBILITY AND NERVOUSNESS.

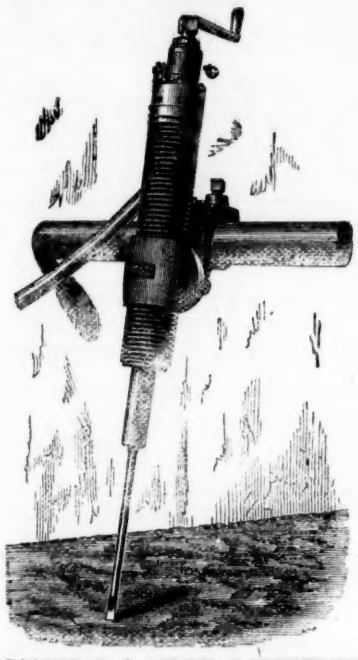
Free Edition, 152 pages, post free, in envelope, two stamps. The WARNING VOICE.—A Special Medical Book for Young Men, on the Cause, Consequence, and Treatment of certain forms of Debility and Nervousness, viz.—Mental and Physical Depression, Palpitation of the Heart, Noises in the Head and Ears, Impaired Sight and Memory, Indigestion, Pains in the Back, Headache, Piles, Constipation, Hysteria, Dizziness, Local Weakness, Muscular Relaxation, Nervous Irritability, Blushing, &c., resulting from Exhaustion of Nerve Power, effect of Overwork, City Life, Worry, Brain Toil, Intemperance, and other abuses of the system.

Address, Dr. H. SMITH, 9, Burton Crescent, London, W.C.

"DARLINGTON" ROCK BORER.

NO VALVE.

SCREW, OR CRADLE MOUNTED, BORING MACHINES.



AIR COMPRESSORS. DRIVING AND SINKING APPARATUS.

JOHN DARLINGTON, 2, COLEMAN-STREET-BUILDINGS,
MOORGATE STREET, LONDON, E.C.

PATENT DUPLEX LAMPS

FOR COLLIERIES, IRONWORKS, &c.

SUITABLE FOR PIT BANKS, ENGINE HOUSES, &c., &c.

Each Lamp gives a light equal to 26 candles.
No breakage of Chimneys from heat.
Cottons last three months.
Will burn any mineral oil.

S. HOOPER,
LAMP MAKER & OIL MERCHANT,
LOWER TEMPLE STREET,
BIRMINGHAM.

N.B.—Lamps made suitable for every purpose.
The BEST SIGNAL BELL MADE for MINING PURPOSES.
ILLUSTRATIONS ON APPLICATION.

WIRE ROPES.

JOHN AND EDWIN WRIGHT,

PATENTEES, ESTABLISHED 1770.

MANUFACTURERS OF EVERY DESCRIPTION OF IMPROVED

Patent Round and Flat Wire Ropes,

From the very best quality of Charcoal and Patent Steel Wire. Galvanised Wire, Ropes for Ships' Rigging, Galvanised Signal and Fencing Strand, Copper Rope Lightning Conductors, Colliery Ropes and Steam Plough Ropes made from the best Patent Improved Steel Wire.

PATENT ROUND AND FLAT HEMP ROPES,

Hemp, Flax, Engine Yarn, Cotton Waste, Tarpauling, Oil Sheets, Brattice Cloth, Wagon Covers, &c., &c.

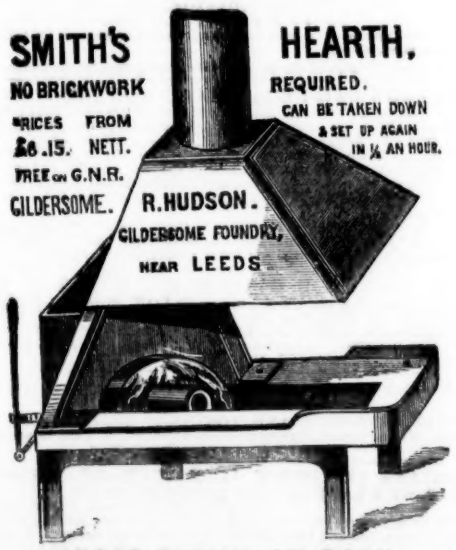
UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.
UNIVERSE WORKS, GARRISON STREET, BIRMINGHAM.
CITY OFFICE, No. 5, LEADENHALL STREET, E.C.

All communications to be forwarded to the BIRMINGHAM ADDRESS.

IMPROVED IRON

SMITH'S HEARTH.

NO BRICKWORK REQUIRED.
PRICES FROM £6.15. NETT.
FREE on G.N.R.
CAN BE TAKEN DOWN & SET UP AGAIN IN ¼ AN HOUR.
GILDERSOME.
R. HUDSON.
GILDERSOME FOUNDRY,
NEAR LEEDS.



GREAT SAVING IN ROOM.

Second Edition. Just published, price 8s. 6d.

A NEW GUIDE TO THE IRON TRADE OR, MILL MANAGERS' AND STOCK-TAKERS' ASSISTANT;

Comprising a Series of New and Comprehensive Tables, practically arranged to show at one view the Weight of Iron required to produce Boiler-plates, Sheet-iron, and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions. To which is added a variety of Tables for the convenience of Merchants, including a Russian Table.

BY JAMES ROSE.
Batman's Hill Ironworks, Bradley, near Bilston.

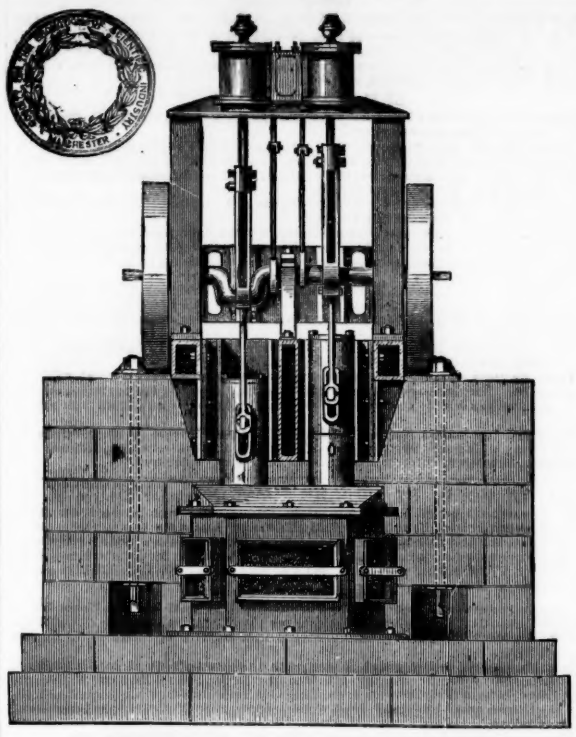
OPINIONS OF THE PRESS.

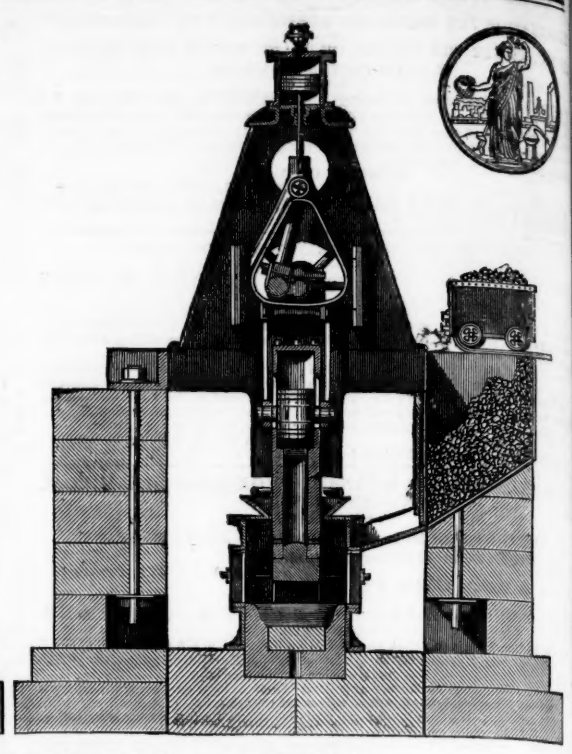
"The Tables are plainly laid down, and the information desired can be instantaneously obtained."—*Mining Journal.*

"900 copies have been ordered in Wigan alone, and this is but a tithe of those to whom the book should commend itself."—*Wigan Examiner.*

"The work is replete on the subject of underground management."—M. BANKS Colliery Proprietor.

To be had on application at the MINING JOURNAL Office, 26, Fleet-street, London





SHOLL'S PATENT DIRECT-ACTING PNEUMATIC STAMPERS,

For Pulverising Tin and Lead Ores, Gold Quartz, &c.,

SOLE MAKERS FOR CORNWALL,

N. HOLMAN AND SONS,

ST. JUST FOUNDRY, NEAR PENZANCE, CORNWALL.

All objectionable features of "wear and tear" common to the original and existing Pneumatic Stamps (driven by belts) are removed in this patent, and leather glands and stuffing boxes entirely dispensed with, the pneumatic piston being reciprocated into the compressing chambers by direct-action from without. These double machines are guaranteed to be of the capacity of 36 ordinary heads of cam and lifter stamps, and engineers will at once see that, inasmuch as the power is directly applied to its work (without the medium of belts and other gearing), the minimum consumption of coal (all other conditions being equal) must be the result.

The COST OF THESE MACHINES (including boiler) is about ONE-THIRD OF THE ORIGINAL CAM AND LIFTER STAMPS, to do the same work.

ROTARY STAMPERS SUPPLIED ON THE SAME PRINCIPLE, WITHOUT STUFFING BOXES OR GLANDS, WHERE RUNNING GEAR EXISTS, OR WITH HORIZONTAL CONDENSING ENGINES AND BELTS TO DRIVE THEM, IF PREFERRED.

Also, SOLE MAKERS OF STEPHENS' PATENT PULVERISER.
MINING AND OTHER MACHINERY CONSTANTLY ON SALE,
NEW AND SECOND-HAND.

SHOLL'S PATENT DIRECT-ACTING AND ROTARY

PNEUMATIC STAMPERS.

N.B.—ENQUIRIES, OR ORDERS FOR ANY OTHER PARTS OF GREAT BRITAIN (SAVE CORNWALL), AND ALL FOREIGN COUNTRIES, TO BE FORWARDED TO THE OFFICE OF THE PATENTEE,

68, CRANWORTH STREET, MANCHESTER.

PATENT

HAND-POWER ROCK DRILL.

IMMENSE SAVING.
STEAM POWER AND SKILLED LABOUR DISPENSED WITH.

PRICE COMPLETE, £50.

FOR SINKING, DRIVING, AND OPEN QUARRY WORK.

"TIMES," November 29th, 1877.

"Enough was done to demonstrate that the machine was well calculated to take its place in mining and quarrying operations, and to successfully supersede for most purposes the slow and tedious process of hand boring."

Testimonial received from Messrs. JOHN TAYLOR and SONS, 6, Queen-street-place, E.C.

"DEAR SIRS,—I have much pleasure in letting you know that the hand-power rock drill, which you have supplied to our works at Coëcron, near Nantes, seems likely to prove a very useful implement in our granite quarries. Our engineer reports that it bores 1¼ hole in granite at the rate of 1 inch per minute, worked by two men. No difficulty is found by them in keeping up continuously that rate, a third man relieving one of the others from time to time.

Yours very truly,
(Signed) RICHARD TAYLOR."

"January 17, 1878.

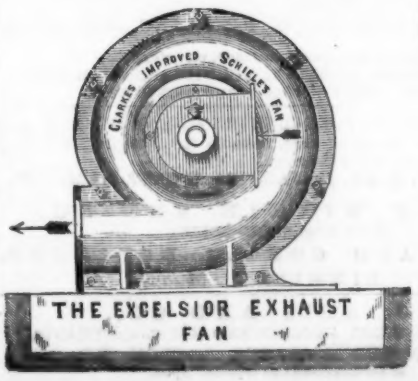
HAND-POWER ROCK DRILL COMPANY (LIMITED).
THOS. B. JORDAN, SON, & MEIHE,
63, QUEEN VICTORIA STREET, LONDON, E.C.

CLARKE AND SUTCLIFFE,

CLARKE'S IMPROVED SCHIELES' PATENT

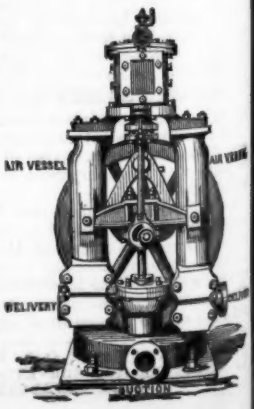
BLAST AND EXHAUST FANS,

MINE VENTILATORS,
SCHIELES' PATENT TURBINES,
SLATE PLANING,
AND
SAWING MACHINES.
IMPROVED EXCELSIOR
DOUBLE-ACTING STEAM-RAM PUMP.



"THE EXCELSIOR EXHAUST FAN"

UNION IRONWORKS,
Rochdale Road, Manchester,
LATE
THE UNION ENGINEERING COMPANY, LIMITED.



NOBEL'S DYNAMITE

Is the MOST ECONOMICAL and POWERFUL EXPLOSIVE for every kind of MINING and QUARRYING OPERATIONS; for blasting in hard or soft, wet or dry ROCKS; for clearing land of TREE ROOTS and BOULDER STONES; for rending massive BLOCKS of METAL; for SUBAQUEOUS and TORPEDO purposes; and for recovering or clearing away of WRECKS, &c.

ITS SAFETY is evidenced by the total ABSENCE OF ACCIDENTS in transit and storage; it is insensible to heavy shocks its GIANT POWER being only fully developed when fired with a powerful percussion detonator, and hence its great safety.

As a SUBSTITUTE FOR GUNPOWDER its advantages are the GREAT SAVING OF LABOUR, rapidity and INCREASE OF WORK done, FEWER and smaller BORE-HOLES required, greater depth blasted, safety in use NO DANGER FROM TAMPING, absence of smoke, unaffected by damp, &c.

For information, apply to the—
NOBEL'S EXPLOSIVES COMPANY (LIMITED), GLASGOW;
OR AT THE
London & Export Office, 85, GRACECHURCH STREET, LONDON E.C.

TONITE, OR COTTON POWDER.

THE SAFEST, STRONGEST, AND CHEAPEST OF ALL EXPLOSIVES.

Recommended to MINERS, PIT SINKERS, QUARRYMEN, and CONTRACTORS as the MOST EFFICIENT and ECONOMICAL BLASTING AGENT ever invented.

Results of practical experience show a saving of from 15 to 20 per cent. over the strongest explosives preiously in use.

It saves labour in drilling holes, as a less number of holes are needed.

It does not require thawing, but is ready for use at all temperatures and in all climates.

It can also be advantageously used in breaking up boulders, extracting stumps, removing wrecks, exploding torpedos, and for submarine purposes in general, as well as for signal lights and fog signals for ships.

OFFICES:
23, QUEEN ANNE'S GATE, LONDON, S.W.
WORKS: FAVERSHAM, KENT.

Agents DINEEN, SON, and Co., Leeds; JOHN RUSSELL, Whitehaven; R. J. CUNNACK, Helston, Cornwall; J. and W. SMITH, Chapel-en-le-Frith; W. VEITCH, Jedburgh, N.B.

THE BRITISH DYNAMITE COMPANY

VERSUS

MESSRS. KREBS & COMPANY.

THE COURT OF APPEAL HAVE REVERSED THE DECISION OF MR. JUSTICE FRY, AND DISSOLVED THE INJUNCTION GRANTED BY HIM; AND DISMISSED THE ACTION, WITH COSTS, AGAINST THE PLAINTIFF COMPANY.

MESSRS. KREBS BROTHERS AND CO. ARE PREPARED TO EXECUT E ORDERS FOR LITHOFRACTEUR BOTH FOR HOME AND FOREIGN CONSUMPTION AS USUAL.

Address,— **MESSRS. KREBS BROTHERS AND CO.,**
22, BASINGHALL STREET, LONDON, E.C.
J. W. SEYD, Agent.

TO PROPRIETORS OF MINES.

BLASTING POWDER

OF THE STRONGEST DESCRIPTION, THOROUGHLY TESTED. HIGHEST TESTIMONIALS FROM FIRST-CLASS ENGINEERS. ACCIDENTS IMPOSSIBLE. WILL BURN GRADUALLY AND NEVER EXPLODE, EXCEPT WHEN WELL RAMMED IN AND FIRED IN THE USUAL WAY. THE MORE IT IS RAMMED THE STRONGER ITS FORCE. MANUFACTURED COST PRICE 2d. PER POUND.

THE PATENT FOR SALE, or the Powder supplied in large quantities on royalty.

Apply, post paid, to—
MESSRS. SPRENT, SPRENT, AND PHIPPS,
HOUSE, ESTATE, AND COMMISSION AGENTS,
240, RUE DE RIVOLI, PARIS.

THE TUCKINGMILL FOUNDRY COMPANY

(TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS),
CAMBORNE, CORNWALL,
Engineers, Iron and Brass Founders, &c.,
MAKERS OF EVERY DESCRIPTION OF
MINING MACHINERY, SHOVELS, GEARWORK, PUMPING, WINDING, AND STAMPING ENGINES.
ALSO OF
BLAKE'S STONE BREAKERS.

SOLE MAKERS OF
BORLASE'S PATENT ORE-DRESSING MACHINES AND PULVERISERS.
ESTIMATES GIVEN UPON INDENTS AND SPECIFICATIONS.
ILLUSTRATED CATALOGUES POST FREE ON APPLICATION.
LONDON OFFICE: 85, GRACECHURCH STREET, E.C.

THOMAS TURTON AND SONS,

MANUFACTURERS OF
MINING STEEL of every description.
CAST STEEL FOR TOOLS. CHISEL, SHEAR, BLISTER, & SPRING STEEL.
MINING TOOLS & FILES of superior quality.
EDGE TOOLS, HAMMERS, PICKS, and all kinds of TOOLS for RAILWAYS, ENGINEERS, CONTRACTORS, and PLATELAYERS.
LOCOMOTIVE ENGINE, RAILWAY CARRIAGE and WAGON SPRINGS and BUFFERS.
SHEAF WORKS AND SPRING WORKS, SHEFFIELD.

LONDON OFFICES,—35, QUEEN STREET, CITY. PARIS DEPOT—12, RUE DES ARCHIVES.
NEW YORK STORE—102, JOHN STREET.

"Kainotomon" Rock Drill

SELECTED BY THE
BRITISH, PRUSSIAN, & SAXON GOVERNMENTS.

SUPERIOR Air-Compressors, Coal-Cutters, Pumps, and all Mining Machinery.

Secondhand ROCK DRILLS BRYDON AND DAVIDSON'S make £25 each new £32

T. A. WARRINGTON,
30, King-street, Cheapside,
LONDON E.C.

THE
PHOSPHOR BRONZE
COMPANY (LIMITED).

139, CANNON STREET, E.C
LONDON.

Alloy, No, II., for pinions, ornamental castings, steem fittings, &c.	£120	per ton.
„ No. IV., for pinions, pumps, valves, linings, cylinders, &c.	130	„
„ No. VI. (must be cast in chill) for bolts, &c. This alloy has very great tensile strength ...	140	„
„ No. VII., for hydraulic pumps, valves, and plungers, piston rings, bushes and bearings, for steel shafts	140	„
„ No. XI., special phosphor-bronze bearing metal, wearing five times as long as gun metal	112	„

The prices of castings vary according to the pattern, the quantity required, and the alloy used.

WIRE ROPES, TUBES OF ALL DESCRIPTIONS, &c.

CRAVEN AND SPEEDING BROS.,

MANUFACTURERS OF EVERY DESCRIPTION OF
WIRE AND HEMP ROPES
FOR
COLLIERIES, RAILWAYS AND SHIPPING, &c,

Charcoal and Steel Wire Ropes (Flat and Round), of best-selected Charcoal and Steel Wire.
Guide Rods.
Galvanised Wire Signal Cord.
Galvanised and Plain Strand for Fencing.
Galvanised Wire Rope for Ships' Rigging.
Chains, Wire Rope Pulleys, Brattice Cloth, &c., &c.
Hemp Crab Ropes, of best selected Petersburg and Italian Hemp
Ditto Flat Ropes ditto ditto
Ditto Cordage ditto ditto
Manilla Rope, White and Tarred.
Flax Spun Yarn and Dressed Flax, for Packing.
Brown and White Spun Yarn.
Fine Dressed Petersburg and Italian Hemp, &c., &c.

Ships Rigging fitted to order. Estimates and special quotations supplied on application to

CRAVEN & SPEEDING BROS.
Wear Hemp and Wire Rope Works,
SUNDERLAND.

HEPBURNS'
PUMP LEATHER
WATERPROOF

By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

I. AND T. HEPBURN AND SONS,
TANNERS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE MANUFACTURERS,
LONG LANE, SOUTHWARK, LONDON
Prize Medals, 1851, 1855, 1862, for
MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

MR. W. F. STANLEY, MATHEMATICAL INSTRUMENT MANUFACTURER TO H.M.'S GOVERNMENT, COUNCIL OF INDIA SCIENCE AND ART DEPARTMENT, ADMIRALTY, &c.
MATHEMATICAL, DRAWING, and SURVEYING INSTRUMENTS of every description, of the highest quality and finish, at the most moderate prices.
Price-list post free.
ENGINE DIVIDER TO THE TRADE.
ADDRESS—GREAT TURNSTILE, HOLBORN, LONDON, W.C

Now ready, price 3s., by post 3s. 3d., Sixth Edition; Twentieth Thousand Copie much improved, and enlarged to nearly 300 pages.

HOPTON'S CONVERSATIONS ON MINES, between Father and Son. The additions to the work are near 80 pages of useful information, principally questions and answers, with a view to assist applicants intending to pass an examination as mine managers, together with tables, rules of measurement, and other information on the moving and propelling power of ventilation, a subject which has caused so much controversy.

The following few testimonials, out of hundreds in Mr. Hopton's possession, speak to the value of the work:—

"The book cannot fail to be well received by all connected with collieries."—*Mining Journal.*

"Its contents are really valuable to the miners of this country."—*Miners Conference.*

"Such a work, well understood by miners, would do more to prevent colliery accidents than an army of inspectors."—*Colliery Guardian.*

London: MINING JOURNAL Office, 26, Fleet-street; and to be had of all booksellers.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares	Mines	Paid	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
1500	Alderley Edge, c, Cheshire*	10 0 0	—		12 11 8	0 5 0	Jan. 1876
4000	Brookwood, c, Buckfastleigh	1 16 0	1	½ 1	3 16 0	0 2 0	Nov. 1875
2000	Bryn Alyn,* l, Denbigh	10 0 0	—		0 7 0	0 7 0	Jan. 1877
4400	Cashwell, l, Cumberland*	2 10 0	2¼	1¼ 2¼	1 9 6	0 2 0	Aug. 1876
1010	Carn Brea, c, t, Illogan†§	36 7 6	47½	42½ 45	308 0 0	1 0 0	Feb. 1874
4450	Cook's Kitchen, t, Illogan†§	24 4 9	2½	1½ 2	11 17 0	0 7 6	Jan. 1873
6340	Devon Gt. Consols, c, Tavistock†*	1 0 0	3	2¼ 3	116 15 0	0 5 0	July 1877
4296	Dolcoath, c, t, Camborne	10 14 10	33	30 32½	112 6 3	0 5 0	Mar. 1878
5000	East Black Craig,* l., Scotland	5 0 0	—		0 10 0	0 10 0	Feb. 1877
400	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6400	East Pool, t, c, Illogan	0 9 9	9	9 9¼	15 6 9	0 2 0	Feb. 1878
40000	Glasgow Cara., c* [30,000 £1 p., 10,000 15s. p.]		1⅜	1⅛ 1⅜	0 13 4	0 0 6	Feb 1878
7500	Gorsedd and Merllyn Cons., l, Flint	2 10 0	5	4½ 5	0 5 0	0 5 0	Aug. 1877
15000	Great Dyliffe,* l, Montgom	4 0 0	3	2 3	0 2 6	0 2 6	Apr. 1876
15000	Great Laxey, l, Isle of Man*	4 0 0	19	17½ 18½	23 11 0	0 8 0	Apr. 1878
615	Gt. Retallack, l, bl, Perranzabuloe	5 18 6	—		0 1 6	0 1 6	May 1876
5000	Green Hurth, l, Durham*	0 6 0	1¼	1⅛ 1¼	1 18 0	0 3 0	Mar. 1878
30000	Grogwinion, l, Cardigan*	2 0 0	4¼	3½ 4	0 14 0	0 2 0	Jan. 1878
9830	Gunnislake (Clitters), t, c	5 5 0	2¾	2½ 2¾	0 13 9	0 1 0	Oct. 1876
60000	Holmbush, a, c, s-l, Callington*	1 0 0	1½	1⅛ 1⅜	0 4 6	0 0 6	Sept. 1877
2800	Isle of Man, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1876
20000	Leadhills,* l, Lanarkshire	6 0 0	4	4⅛ 4⅝	0 15 0	0 3 0	Mar. 1878
400	Lisburne, l, Cardiganshire	18 15 0	55	50 55	585 10 0	1 0 0	Feb. 1878
14000	Llanidloes,* l, Montgomery	3 0 0	1¼	¾ 1¼	0 9 0	0 4 6	Nov. 1876
9000	Marke Valley, c, Linkinhorne	5 3 6	¾	⅝ ¾	7 15 0	0 2 0	Jan. 1876
10000	Mellanear Copper, Hayle*	2 0 0	4½	4⅜ 4⅝	0 2 0	0 2 0	Jan 1878
9000	Minera Mining Co., l, Wrexham*	5 0 0	16	14 16	67 10 8	0 2 6	Feb. 1878
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	—		23 17 6	0 2 6	Jan. 1878
444	North Busy, c, Chacewater	3 9 6	5	4 5	1 10 0	1 0 0	July 1877
10289	North Hendre, l, Wales	2 10 0	—		2 2 6	0 10 0	Mar. 1878
30000	Panty Mwyn,* l, Mold (8794 iss.)	2 0 0	3	2¼ 3	0 1 0	0 1 0	Feb. 1877
6000	Pedn-an-drea Con., t, Redruth	0 8 6	6¾	6¼ 6¾	0 9 0	0 9 0	June 1877
5000	Penhalls, t, St. Agnes	3 2 6	1	¾ 1	3 18 6	0 2 0	July 1875
6000	Pennant, l, bar, North Wales*	5 0 0	5	4½ 5	0 10 0	0 5 0	Mar. 1878
45793	Penstruthal,* t, c, Gwennap	2 0 0	6s.	4s. 5s.	0 2 8	0 0 8	Nov. 1875
13000	Prince Patrick,* s-l, Holywell	1 0 0	2¼	1¾ 2¼	0 14 0	0 1 8	Jan. 1876
10000	Red Rock,* l, Cardigan	2 0 0	2½	2 2½	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravels, l, Salop*	7 10 0	8½	8 8½	7 15 0	0 5 0	Mar. 1878
512	South Caradon, c, St. Cleer	1 5 0	85	75 84	742 10 0	1 0 0	Mar. 1878
6123	South Condurrow, t, c, Camborne‡	6 5 6	11½	11 11½	3 13 0	0 8 0	Apr. 1878
12000	St. Harmon,* l, Montgom	3 0 0	3½	2½ 3½	0 6 0	0 3 0	July 1877
15000	So. Pr. Patrick,* s-l. (8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct. 1875
13000	Tankerville, l, Salop*	6 0 0	4¼	4 4½	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†	9 0 0	12	11 12	50 8 6	0 5 0	May 1877
15000	Van, l, Llanidloes*	4 5 0	25	21 22	22 15 6	0 12 0	Jan. 1878
3000	W. Chiverton, l, Perranzabuloe†	12 10 0	14	12 14	55 10 0	0 10 0	Feb. 1878
1783	West Poldice, St. Day	10 0 0	15	13 15	1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	67½	61 66	26 15 0	1 10 0	Feb. 1878
2048	West Wheal Frances, t, Illogan	28 1 3	3¼	2¾ 3¼	3 12 6	0 5 0	Oct. 1872
12000	West WyeValley,* l, Montgom	3 0 0	4	3¼ 3¾	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols t, St. Austell	18 0 0	—		17 0 0	1 10 0	Apr. 1878
2048	Wheal Jane, t, Kea	2 18 10	1	¾ 1	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	2½	2 2½	11 19 6	0 2 6	Dec. 1874
25300	Wh. Newton, a, c, s, t, Calstock*	1 0 0	5½	5 5½	0 8 6	0 4 0	Sept. 1877
80	Wheal Owles, t, St. Just§	98 15 0	50	40 50	522 10 0	4 0 0	Aug. 1872
3000	Wheal Peevor, t, Redruth	7 11 0	6¾	6¼ 6¾	0 5 0	0 5 0	Apr. 1878
6000	Wheal Prussia, t, Redruth	0 5 0	7½	7 7½	0 4 0	0 1 0	July 1877
10000	Wye Valley, l, Montgomery*	3 0 0	2½	1¾ 2¼	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares	Mines	Paid	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35500	Alamillos, l, Spain*†	2 0 0	1½	1 1½	1 19 3	0 1 0	April 1878
40000	Almada and Tirito Consol., s*†	1 0 0	⅜	¼ ⅜	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	2	1½ 2	0 19 6	0 1 6	July 1877
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1875
15000	Birdseye Creek, g, California*	4 0 0	1	¾ 1	0 14 0	0 2 6	June 1874
20000	Cape Copper Mining,*† So. Africa	7 0 0	31	29 31	30 10 0	0 17 6	Mar. 1878
34433	Cedar Creek, g, California*	5 0 0	⅜	⅛ ⅜	0 5 0	0 2 6	June 1873
35000	Cesena Sul. Co., Romanga, Italy*	10 0 0	—		0 10 6	0 3 0	Aug. 1877
15000	Chicago, s, Utah*	10 0 0	1½	1 1½	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	1¾	1¼ 1¾	0 13 6	0 4 0	Jan. 1875
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 11 5	0 3 0	May 1877
100000	Don Pedro North del Rey*†	0 16 0	⅜	⅛ ⅜	2 5 9	0 2 0	Mar. 1873
23500	Eberhardt & Aurora, s, Nevada*†	10 0 0	6¼	5¾ 6¼	1 8 0	0 3 0	Dec. 1877
70000	English & Australian, c† S. Aust.	2 10 0	1¾	1 1¾	2 15 9	0 1 0	Mar. 1877
30000	Flagstaff, s, Utah*	10 0 0	⅞	⅝ ⅞	4 2 0	0 5 0	July 1875
25000	Fortuna, l, Spain*†	2 0 0	4¼	4¼ 4¾	6 19 10	0 5 0	April 1878
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	2⅛	1⅞ 2⅛	0 1 0	0 1 0	June 1876
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 1875
68000	Kapunda Mining Co. Australia†	1 3 0	—		0 2 4	0 0 6	June 1875
20000	Last Chance, s,* Utah	5 0 0	⅞	⅝ ⅞	0 14 0	0 2 0	July 1875
15000	Linares, l, Spain*†	3 0 0	5¾	5 5½	17 7 10	0 5 0	April 1878
65000	London and California, g*†	2 0 0	⅜	⅛ ⅜	0 1 0	0 1 0	July 1875
7837	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—		1 11 6	0 1 6	Mar. 1873
5000	Mamm Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 1873
10000	Pontgibaud, s-l, France†	20 0 0	29	26 28	25 8 0	1 11 0	Nov. 1877
100000	Port Phillip, g, Clunes*†	1 0 0	¾	⅜ ¾	1 10 0	0 1 0	Jan. 1878
54000	Richmond Consols, s, Nevada*†	5 0 0	10	9 9½	4 4 0	0 7 6	Feb. 1878
40000	Santa Barbara,* g, Brazil	0 10 0	1½	1¼ 1½	0 3 9	0 1 3	May 1877
120000	Scottish Australian Mining Co.*†	1 0 0	1⅞	1⅜ 1⅞	15 per cent.		Nov. 1877
80000	Scottish Austral. Mining Co., New	0 10 0	⅞	¾ ⅞	15 per cent.		Nov. 1877
112500	Sierra Buttes, g, California*†	2 0 0	1⅛	1¼ 1⅛	1 18 0	0 2 0	Oct. 1877
60000	South Aurora, s, Nevada*	5 0 0	¾	⅛ ¾	0 14 2	0 2 0	Nov. 1873
£253000	St. John del Rey*† (£5 stock & multiples dealt in)			305 315	½ year	20 p. ct. for Dec.	1876
20000	Tolima, g, s* So. America	5 0 0	—		0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	¾	⅜ ¾	0 12 6	0 0 7½	Jan. 1878
15000	Western Andes, s,* New Granada	5 0 0	—		0 12 0	0 12 0	July 1876
21000	W. Prussian (5500 pref. sh. 10l. pd)	10 0 0	11	10½ 11	1 8 0	0 4 0	Jan. 1878

NON-DIVIDEND FOREIGN MINES.

Shares	Mines	Paid	Last Pr.	Clos. Pr.	Last Call.
5000	Anguilla Phosphate, West Indies (4000 issued)	10 0 0	—		Fully pd.
12000	Argentine, g, Argentine Republic	5 0 0	1⅛	¼ ¾	Fully pd
3000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd.
30000	Blue Tent, hyd., California	5 0 0	3¼	3 3¼	Fully pd.
49935	Chontales, g, s, Nicaragua*†	2 0 0	⅜	⅛ ⅜	Fully pd.
16000	Condes of Chili, s-l	5 0 0	1	¾ 1	Fully pd.
20000	English Australian, g, Victoria*	1 0 0	⅞	⅝ ⅞	Fully pd.
35000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	⅛	⅛	Fully pd.
40000	Holcombe Valley, g,* California	1 0 0	—		Fully pd
8000	Hornachos,* s-l, Spain	10 0 0	13	12½ 13	Fully pd.
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	5⅛	5 5½	Fully pd.
12000	Hunter Consolidated, s-l, Utah	10 0 0	—		Fully pd.
20000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd.
100000	I. X. L., g, s, California*	1 0 0	—		Fully pd.
50000	Javali, g, Nicaragua*	2 0 0	⅜	¼ ⅜	Fully pd.
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, z, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
75000	Malabar, g, Colombia* (67165 issued)	1 0 0	⅛	⅛ ¼	Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	⅜	¼ ⅜	Fully pd.
12000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd.
4588	New Bensberg, i, l, Germany	5 0 0	—		Nov. 1876
60000	New Quebrada, c, Venezuela*	5 0 0	1¼	1⅛ 1¾	Fully pd.
20000	New Zealand Kapanga, g, Coromandel*	5 0 0	⅞	⅜ ⅝	Fully pd.
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	—		Fully pd.
50000	Panulcillo, c, Chili*† (£80000 debentures)	4 0 0	1⅛	1 1⅛	Fully pd.
80000	Pestarena United, g, Italy*†	2 0 0	⅜	¼ ⅜	Fully pd.
50000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
50000	Rica, g, Colombia* (40000 issued)	1 0 0	⅛	⅛ ¼	Fully pd.
£2,181,000	Rio Tinto,* c, Huelva, Spain	Stock	57	56 [illegible]	Fully pd.
100000	Rossa Grande, g, Brazil*† (£1 shares)	0 19 0	⅛	⅛	July 1872
30000	Russia Copper, Orenburg and Ufa*†	10 0 0	1⅛	1¼ 1⅝	Fully pd
25000	San Pedro, c, Chili*	2 0 0	½	¼ ⅜	Fully pd.
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd.
30000	Tecoma, s, Utah*	10 0 0	⅜	⅜ ⅝	Fully pd.
43174	United Mexican, s, Mexico*†‡	28 15 3	2¼	1¾ 2¼	May 1875
	Utah, g, s-l, Utah*	5 0 0	—		Fully pd.
25000	Virneberg, c Rheinbreitbach, Germany* (£2 shares)	1 15 0	—		Jan. 1878
15000	Yorke Peninsula, c, South Australia	1 0 0	½	¼ ½	Fully pd.
40000	Yorke Peninsula, c, South Australia Preference	1 0 0	1	¾ 1	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices	
Argentine, 1868, 6 per cent.	70	72
Bolivia, 6 per cent.	23	24
Brazilian, 1865, 5 per cent.	94	96
Chilian, 1866, 7 per cent.	101	104
City of Providence, 5 p.c. coupon bnds	100	102
Egyptian, 5 per cent. pref.	51¼	52¼
Do., unified debt, scrip	29¾	30¼
Do., 7 per cent., V.M.L.	64	67
Do., 9 per cent. guar.	68	73
Do., K. Daira Sanieh	37	39

	Closing Prices	
Foreign and Col. Gov. Trust, 6 p. ct.	62	66
Do., 5 per cent., 2d issue	50	55
Do., 6 per cent., 3d issue	55	60
Do., 1872, 4th issue	48	53
Do., 1873, 5th issue	50	55
Peruvian, 1870, 6 per cent.	14¾	15¼
Do., 1872, 5 per cent	12⅝	13⅛
Russian, 5½ per cent. L. Mort.	—	
Spanish, Quicksilver Mort., 5 p. ct.	97	99
United States Mort., 6 per cent.	99	101

NON-DIVIDEND MINES.

Shares	Mines	Paid	Last wk.	Clos. pr
40000	Aberdaunant, l, Llanidloes*	1 0 0	1	¾ 1
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
80	Albion, i, Cornwall	100 0 0	—	
7800	Alvig. & Burng.,* t, St. Aust.	3 0 0	1¾	1⅛ 1¾
12000	Assheton, -, Carnarvonshire*	5 0 0	1	¾ 1
50000	Ballycummisk,* c, Schull	2 0 0	—	
12000	Bedford Unit.,* c, Tavist. (1l. liab.)	0 1 0	¼	⅛ ⅜
28000	Belstone,* c, Devon (27,000 fy. pd.)	1 0 0	—	
8000	Blaen Caelan,* l, Cardigan	3 0 0	5	4¾ 5
3937	Blue Hills, t, c, St. Agnes	3 12 6	1	¾ 1
30000	Bodidris,* l, bl, Denbighshire	1 0 0	1¼	1⅛ 1¼
1000	Bollihope Vale,* s-l, Durham	5 0 0	—	
200	Botallack, t, c, St. Just‡	123 15 0	—	
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	1	¾ 1
50000	Cambrian,* s-l, c, Cardiganshire	2 0 0	3½	3 3½
3348	Cargoll, s-l, Newlyn‡	7 4 0	2½	2 2½
10000	Caron, l, Cardigan*	2 0 0	2¾	2 2⅜
20000	Central Foxdale, l, I. of Man* (2l. sh.)	1 5 0	—	
17000	Central Van,* l, bl, Llanidloes	5 0 0	—	
5120	Clementina, l, Llanrwst*	1 0 0	1¼	1¼ 1⅜
7500	Combellack,* t, Wendron	2 0 0	—	
6000	Combmartin, s-l, North Devon	0 7 0	⅛	¼ ⅛
74000	Court Grange, s-l, Cardiganshire	1 0 0	1¼	1 1¼
2 000	Cwm Dwyfor,* c, s-l, Carnarvonsh	1 0 0	—	
3000	Cwmystwith (New) [5l. shares]	4 0 0	—	
1780	D'Eresby Cons., l, bl, Carnarvon	10 0 0	15	12 14
512	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	100	80 100
20000	Denbighshire Consolidated, l*	3 0 0	1	½ 1
12000	Derwent,* l, Durham	4 0 0	1¾	1⅜ 1⅞
10000	Dubby Syke, l, Durham*	0 15 0	⅜	⅜ ½
6144	East Caradon, c, St. Cleer‡	2 16 6	⅛	¼ ⅛
4000	East Chiverton, l, Perranzabuloe	7 1 0	3	2 3
3000	East Craven Moor*, l, Pateley Bdge	10 0 0	10	9 10
6000	East Goginan, l, Cardigan	2 0 0	—	
8000	East Van, l, Llanidloes*	5 0 0	6½	6 6½
1722	East Wh. Lovell, t, Helston	9 1 0	1	¼ ½
20000	Elgar,* s-l, Cardiganshire	1 0 0	1¼	⅜ ⅝
8000	Fronvellan, l, Mont.* [4000 sh. fy. pd.]	1 0 0	—	
3950	Gawton, c, Tavistock	4 5 6	¼	⅛ ¼
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 5 0	⅞	¾ ⅞
10000	Glyn,* l, Llanidloes	2 0 0	⅝	⅜ ⅝
12000	Goginan, & Level Newydd, Card., l	2 10 0	—	
100000	Gold, g, Merionethshire	1 0 0	—	
20000	Goreu,* s-l, Carmarthen	1 0 0	1	¾ 1
20000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 18 0	—	
12000	Great Holway,* l, Flintshire	5 0 0	5½	5 5½
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
253	Gt. Wheal Eleanor, t, North Bovey	1 15 0	2	1¾ 2
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
600	Hartington Moor,* carb. l, Derby	1 0 0	2	1½ 2
6400	Harwood,* l, Durham	0 15 0	5s.	4s. 5s.
1024	Herodsfoot, l, near Liskeard†	8 10 0	8	7 8
18000	Hingston Down, c, Calstock*†	0 5 0	⅛	¼ ⅛
5000	Hush Eisteddfod Minera,* l	2 0 0	—	
200	Islay,* l, Scotland	28 0 0	—	
2500	Killaloe, sl, Tipperary‡	1 0 0	—	
6000	Killifreth, t, Chacewater	2 1 0	⅝	½ ⅝
25000	Kingston Con., s-l, Stoke Climsland.	1 0 0	—	
	Ditto, preference	1 0 0	1⅛	1 1⅛
12000	Ladywell,* l, Salop	2 10 0	1⅛	⅞ 1⅛
12000	Ditto, 10 per cent. pref., 1l. each	0 10 0	⅝	½ ⅝
2500	Levant, c, t, St. Just	9 18 6	—	
6000	Livingstone Consols, t, St. Agnes	0 10 0	1	¾ 1
5120	Lovell, t, Wendron	0 16 0	2	1½ 2
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	4	3 4
24	Mawston,* l, South Wales	50 0 0	65	55 60
6000	Medlyn Moor, t, Wendron	1 17 4	—	
11000	Melyndw l, Cardigan*	3 0 0	1¼	¾ 1¼
11000	Monydd Gorddu, l, Cardigan* (Red.)	5 0 0	—	
12000	Morfa Du, z, g, s, Anglesea	1 0 0	⅞	⅝ ⅞
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
4768	New Bronfloyd,* -, Cardigan (5l. sh.)	3 16 0	4½	4¼ 4½
8000	New Dolcoath, t, c, Camborne*	3 0 0	1¼	1⅛ 1¼
20000	New East Foxdale, s-l, Isle of Man.	0 15 0	—	
16000	New Fowey Consols, t, St. Blazey*	3 0 0	2	1½ 2
1492	New Hendra, t, Breage	3 9 0	—	
3200	New South Merllyn, l, Flint*	2 10 0	1	½ 1
3500	New Tincroft,* t, Lelant	6 0 0	3	2½ 3
5000	New Wheal Emma, c, Buckfastleigh	2 0 0	—	
4000	North Cornwall,* l, Cornwall	5 0 0	5½	5¼ 5½
25000	North Laxey,* Isle of Man	2 0 0	¾	½ ¾
2000	North Levant, t, c, St. Just‡	12 8 0	1	¾ 1
20000	North Prince Patrick,* l, Holywell.	1 0 0	—	
5936	North Treskerby, c, St. Agnes	5 7 10	—	
2000	North Wheal Towan, t, c, Illogan	1 19 6	—	
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	1	⅝ ¾
6000	Park Valley,* s-l, North Devon	0 4 0	1	¾ 1
16923	Parys Mountain,* c, Anglesea	3 0 0	⅛	⅜ ½
12000	Phœnix, & W. Phœnix, t, c, Link.§	5 7 3	5	4½ 5
4000	Pateley Bridge, l, Yorkshire	5 0 0	4	3 4
12000	Plynlimmon, l, Llanidloes*	2 0 0	6s.	4s. 6s.
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	⅛	¼ ⅛
2000	Prideaux Wood, t, Llanivery	5 0 0	—	
5182	Prince of Wales, c, Calstock‡	2 4 0	¼	1s. 2s.
6000	Relistian Consols, c, Gwinear	0 10 0	⅜	⅛ ⅜
15000	Rookhope, l, Durham*	1 10 0	1	⅞ 1
5000	Silvercross,* c, t, Marazion	1 0 0	—	
4200	Snowbrook, s-l, Montgomery	5 0 0	—	
000	So. Cwmystwith, l, Cardiganshire	2 0 0	4	3 4
8000	South Darren, l, Cardigan*	1 10 0	2⅛	1⅞ 2⅛
30000	South de Eresby Mountain, l	1 0 0	1⅜	1⅛ 1⅜
512	South Dolcoath, c, t, Redruth	12 5 0	1⅛	1 1⅛
5000	So. Molton Cons., s-l, No. Devon	0 3 6	¾	¾ 1
18000	South Roman Gravels, l*	1 10 0	⅝	½ ⅝
6000	South Roskear, t, c, Camborne	6 10 0	—	
6000	South Tolcarne, t, c, Camborne	2 11 6	¾	½ ¾
937	South Wheal Crofty, c, Illogan	40 0 10	8	6 7
4500	South Wh. Frances, c, Illogan†	7 12 4	2½	2 2½
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1¼	1 1¼
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	2½	2 2½
30000	Talybont, s-l, Cardiganshire	1 0 0	1¼	1 1¼
6400	Teesdale,* l, Durham	1 0 0	⅝	⅜ ½
14000	Teign Valley, l, bar., Bridford	1 0 0	—	
10000	Temple, l, Cardigan*	1 0 0	3¼	3⅛ 3⅜
10000	Tolgus Consols,* c, Redruth	5 0 0	4½	4 4½
12000	Treveigh Consols, s-l, St. Ive	0 9 6	⅜	¼ ⅜
5000	Treleigh Wood, t, Redruth	6 1 0	—	
12000	Trethellan, s-l, Crantock*	2 0 0	—	
640	Truro*, l, Nerquis, Flintshire	10 0 0	—	
10000	Tyn-y-Fron,* l, Cardigan	1 0 0	1⅝	1⅜ 1⅝
20000	Van Consols, l, Llanidloes*	2 10 0	—	
1000	Vaughan*, l., Cardiganshire	10 0 0	—	
12000	West Assheton, l, Carnarvon	1 0 0	1	¾ 1
6000	West Basset, c, Illogan†‡	6 6 8	¾	½ ¾
5500	West Combmartin, s-l, North Devon	1 0 0	—	
7000	Ditto	0 2 6	—	
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	10	9 10
5000	West Godolphin, t, c, Breage	2 10 0	1⅛	1¼ 1⅛
12000	West Goginan,* Cardiganshire	2 0 0	⅜	⅜ ⅝
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
3000	West Mary Ann, l, Menheniot	0 3 6	¼	⅛ ¼
60000	West Milwr, s-l, Flint	1 0 0	—	
5000	West of England Granite Company	2 0 0	2	2
20000	West Pateley Bridge, l, Yorkshire	1 0 0	2½	2 2¼
1000	West Roskear,‡ s-l, bl, c, Camborne	2 0 0	17	15 17
12000	West Tankerville,* l, Salop	3 0 0	¾	½ ¾
3000	Ditto, 15 per cent pref.	3 0 0	—	
3000	West Wheal Peevor, t, Redruth	0 10 0	—	
600	West Wheal Seton, c, Camborne†	47 0 0	12	10 12
6000	Wheal Agar, c, Illogan	12 0 0	4½	4 4½
512	Wheal Basset, c, Illogan‡	26 2 6	8	7 8
6000	Wheal Coates, t, St. Agnes	2 0 0	—	
2635	Wheal Comfort, c, Gwennap	1 5 0	—	
6000	Wheal Crebor, c, Tavistock	4 3 0	¾	¾ 1
5179	Wheal Grenville, c, Camborne*	3 11 6	3¾	3½ 4
12000	Wh. Mary Hutchings,* t, Plympton‡	1 18 6	3½	3¼ 3½
12000	Wheal Russell, c, Tavistock	2 1 6	—	
4096	Wheal Uny, t, c, Redruth	14 0 6	1½	⅞ 1½
2324	White Cliff,* l, Llanrwst	5 0 0	—	
25000	Wicklow, c, sul, s, Wicklow	2 10 0	—	

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares	Company	Paid	Prices
£100	Abbot, John, and Co. [L.]	£75 0 0	13
15	Albion Steel and Wire Co. [L.]	14 0 0	
5	Alltami Colliery Co. [L.]	5 0 0	4
100	Ashbury Co. [L.]	90 0 0	55
10	Bagnall, John, and Sons [L.]	10 0 0	2¼
10	Benhar Coal Co. [L.]	10 0 0	4
50	Bilbao Iron Ore Co. [L.]	50 0 0	27
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0	
4	Blaen Cwmbach Coal Co. [L.]	4 0 0	
50	Blaenavon Iron and Steel Co. [L.]	50 0 0	
100	Bolckow, Vaughan, and Co. [L.]...A	50 0 0	
50	Bowling Iron Co. [L.]	50 0 0	5
50	Britannia Ironworks [L.]	25 0 0	
50	Brown, Bailey, and Dixon [L.]	40 0 0	11
100	Brown, John, and Co. [L.]	70 0 0	13
5	Cakemore Colliery Co. [L.]	5 0 0	
100	Cammell and Co. [L.]	80 0 0	
20	Cannock and Huntington Coal [L.]	10 0 0	6
10	Cardiff & Swansea St. Coal Co. [L.]	9 0 0	8½
10	Cardigan Steel and Wire Co. [L.]	8 10 0	⅜
10	Central Swedish Iron and Steel [L.]	10 0 0	1
5	Chapel House Colliery	5 0 0	2¾
50	Charlton Iron Co. [L.]	50 0 0	12
50	Chatterley Iron Co. [L.]	45 0 0	26
10	Chillington Iron Co. [L.]	10 0 0	2
10	Consett Iron Co. [L.]	7 10 0	16½
1	Consett Spanish Ore [L.]	1 0 0	¾
50	Cooke, William, and Co. [L.]	40 0 0	32
20	Darlington Iron Co. [L.]	12 10 0	¾
50	Davy Brothers [L.]	22 10 0	2
5	Diamond Fuel Co. [L.]	5 0 0	
32	Ebbw Vale Co. [L.]	29 0 0	21
100	Fox, Samuel, and Co. [L.]	80 0 0	30
10	General Mining Ass. [L.] (£1 returned)	9 0 0	2
20	Great Western Coal Co. [L.]	17 0 0	
2	Gwyngwillim Colliery Co. [L.]	2 0 0	
15	Hopkins, Gilkes, and Co. [L.]	11 0 0	9
50	Knowles, Andrew, and Sons [L.]	17 0 0	13¾
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	3
5	Littledean Woodside Coll. Co. [L.]	5 0 0	
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0	5
10	Lydney and Wigpool Iron Ore [L.]	8 5 0	10
10	Marbella Iron Ore Co. [L.]	10 0 0	7¾
6	Mersey Steel and Iron Co. [L.]	5 0 0	
10	Midland Iron Co. [L.]	5 0 0	1¾
5	Mold Argoed Colliery Co. [L.]	5 0 0	3
10	Monkland Iron and Coal Co. [L.]	10 0 0	7¾
4	Mwyndy Iron Ore [L.]	3 10 0	
100	Nant-y-Glo and Blaina (8 p.c. pref.)	100 0 0	16
3	Nerbudda Coal and Iron [L. & Red.]	2 0 0	1
20	New Sharlston Collieries [L.] Pref.	20 0 0	17
10	Newport Abercarn Coal Co. [L.]	10 0 0	4
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0	
10	Northfield Iron Co. [L.]	8 0 0	3½
1	Norton Green Coal Co. [L.]	1 0 0	
35	Palmer's Shipbuilding and Iron [L.]	25 0 0	15
100	Parkgate Iron Co. [L.]	65 0 0	15
20	Patent Nut and Bolt Co. [L.]	14 0 0	
20	Patent Shaft and Axletree [L.]	10 0 0	¼ dis.
20	Pelsall Coal and Iron [L.]	15 0 0	12
50	Phœnix Bessemer Co. [L.]	40 0 0	
50	Rhymney Iron Co. [L.]	50 0 0	18
10	Richards and Co. [L.]	10 0 0	
10	Sandwell Park Colliery Co. [L.]	10 0 0	13¾
10	Ditto New	5 0 0	2
100	Shotts Iron Co. [L.]	100 0 0	90
100	Sheepbridge Iron and Coal [L.]	55 0 0	20
50	Silkstone & Dodworth Cl. & Iron [L.]	27 0 0	
20	Skerne Ironworks [L.]	20 0 0	15
50	Somorrostro Iron Co. [L.]	50 0 0	
25	South Wales Coal Co. [L.]	21 0 0	6½
100	Staveley Iron and Coal Co. [L.]	60 0 0	18
100	Ditto ditto New	10 0 0	4
10	Swansea Valley Steam Coll. Co. [L.]	6 0 0	
100	Thames Iron Company	100 0 0	
50	Tredegar Iron and Coal Co. [L.]	20 0 0	11
25	Ditto B. shares	25 0 0	21
20	Ulverston Mining Co. [L.]	12 0 0	5
10	Vancouver Coal [L.]	6 0 0	1¼
100	Vickers, Sons, & Co. [L.]	100 0 0	30
50	Welsh Ironworks Co. [L.]	50 0 0	
25	W. Cumberland I. and Steel [L.]	20 0 0	14
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0	
5	West Swansea Colliery Co. [L.]	5 0 0	
10	Whitehaven Iron Co. [L.]	10 0 0	
100	Wigan and Whiston Coal Co. [L.]	70 0 0	
100	Wigan Coal and Iron Co. [L.]	75 0 0	

WAGON COMPANIES.

Shares	Company	Paid	Prices	
10	Birmingham Wagon Co. [L.]	10 0 0	17	17¾
10	Ditto, 2nd issue	4 0 0	3	3¾
10	Ditto, pref., 6 per cent.	10 0 0	11¼	11¾
20	British Wagon Co. [L.]	10 0 0	par	½
10	Gloucester [L.]	10 0 0	9	9½
10	Ditto, 5th issue	5 0 0	¾	¾
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0	3½	3¾
5	Ditto, pref., 6 per cent.	5 0 0	5¾	6¼
10	Midland	10 0 0	7	7½
20	North Central Wagon Co.	20 0 0	27¼	27¾
5	Rail. Car. [L.] (Oldbury)	5 0 0	5¾	6¼
5	Ditto, pref., 6 per cent.	5 0 0	5	5½
20	Sheffield Wagon Co. [L.]	15 0 0	3¼	3½
10	Yorkshire Wagon Co. [L.]	10 0 0	4½	5

TELEGRAPH COMPANIES.

Shares	Company	Paid	Prices	
"St."	Anglo-American	100 0 0	60¼	60¾
10	Brazilian Submarine	10 0 0	6⅛	6½
20	Direct United States Cable	20 0 0	13⅛	13½
10	Eastern	10 0 0	7⅛	7⅜
10	East. Exten., Australia and China	10 0 0	7⅛	7⅜
10	Great Northern	10 0 0	7⅛	7⅜
25	Indo-European	25 0 0	19	20
10	Mediterranean Extension	10 0 0	2¼	2¾
8	Reuters	8 0 0	9½	10
Stk.	Submarine	100 0 0	220	230
10	West India and Panama	10 0 0	2⅛	2⅝
20	Western and Brazilian	20 0 0	4⅜	4⅝
$1000	Western Union, 7 per cent. Mort. Bonds	$1000	113	115

MISCELLANEOUS.

Shares	Company	Paid	Prices	
Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0	38	40
25	Australian Agricultural	21 10 0	83	85
25	Austral. Mort. Land and Finance [L.]	5 0 0	6¾	7¼
10	Avonside Engine [L.]	7 0 0	5	6
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0	105	107
10	Brighton Aquarium [L.]	10 0 0	9¼	10¼
Stk.	Cent. of New Jersey Con. Mort.	100 0 0	68	70
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0	106¾	107¼
25	City of London Real Property [L.]	12 0 0	1¼	1¾
5	Diamond Rock Boring	4 10 0	2⅞	3¼
15	English and Foreign Credit	8 0 0		—
16	Fore Street Warehouse [L.]	14 0 0	10¾	11¼
15	Foster, Porter, and Co. [L.]	10 10 0	9⅝	10¼
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0		—
1	Greenhill [L.]	1 0 0		—
5	Kit Hill Tunnel [L.]	1 0 0		—
17	Hudson's Bay Company	17 0 0	10	10¼
10	Huntington Copper and Sul. Co.	9 0 0	8¼	7¾
Stk.	Illinois Central, $100 shares	100 0 0	77	78
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0	89	91
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0	38	41
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0	93	95
Stk.	Ditto, 6 per cent.	100 0 0	107	109
7½	Imperial Credit [L.]	7 10 0	7⅜	7⅞
—	Ditto, Surplus Certificate	—	6⅛	6⅝
Stk.	Lehigh Val. Con. Mort., A, 6. p. cent.	100 0 0	100	102
10	Milner's Safe [L.]	10 0 0	7¾	8¼
25	National Discount [L.]	5 0 0	9	9½
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	100 0 0	80	82
10	Pawson and Co. [L.]	8 0 0	par]	½ p
50	Peninsular and Oriental Steam	50 0 0	38	40
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1910.	100 0 0	106½	107½
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0	94	95
Stk.	Scottish Aust. Investment Company.	100 0 0	195	200
Stk.	Ditto, 6 per cent. Preference	100 0 0	125	130
10	Silber Light (ord. sh.)	10 0 0		—
20	Suez Canal shares	20 0 0		—
12	Telegraph Construc. & Mainte. [L.]	12 0 0	27½	28
5	Ditto, Second Bonus Three per Cents	5 0 0	2½	3¼
10	Tharsis Sulphur and Copper Co.	10 0 0	22	23
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0	103	105
Stk.	Union Pacific Railway, 1st Mort.	100 0 0	106	108

London: Printed by Richard Middleton, and published by Henry English (the proprietors), at their office, 26, Fleet Street, E.C., where all communications are requested to be addressed April 20 1878.